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# The Airpower HISTORIAN

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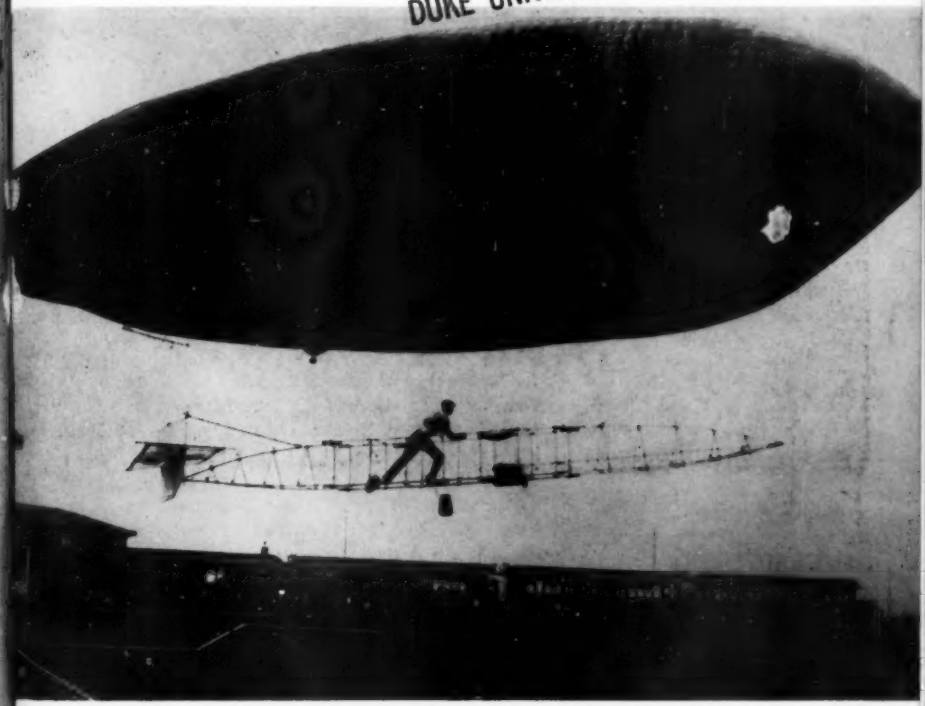

THE AIRSHIP IN 1905
*Pilot position on the catwalk served as substitute for elevators*

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# The Airpower HISTORIAN

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VOLUME VIII • NUMBER 2 • APRIL, 1961



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It is the policy of *The Airpower Historian* neither to endorse nor subscribe to the views expressed in the articles it presents. Many events in history must perforce remain controversial by reason of the multiplicity of interpretations given these events by those who participated in them, or have studied them from hindsight. Appropriate articles are invited for consideration.


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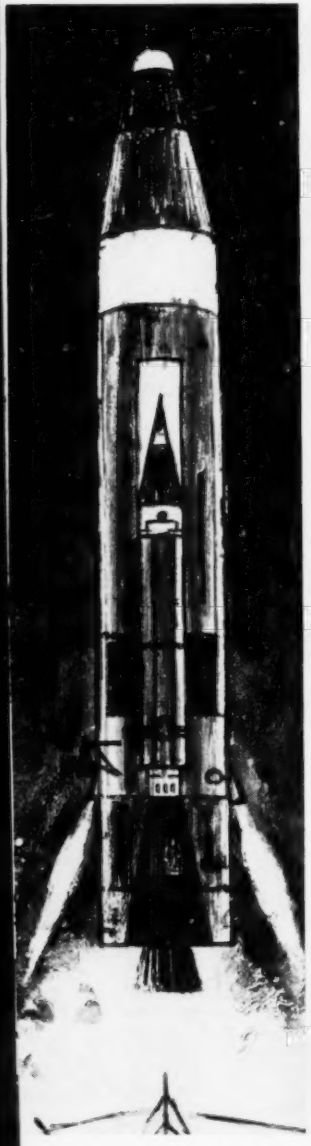

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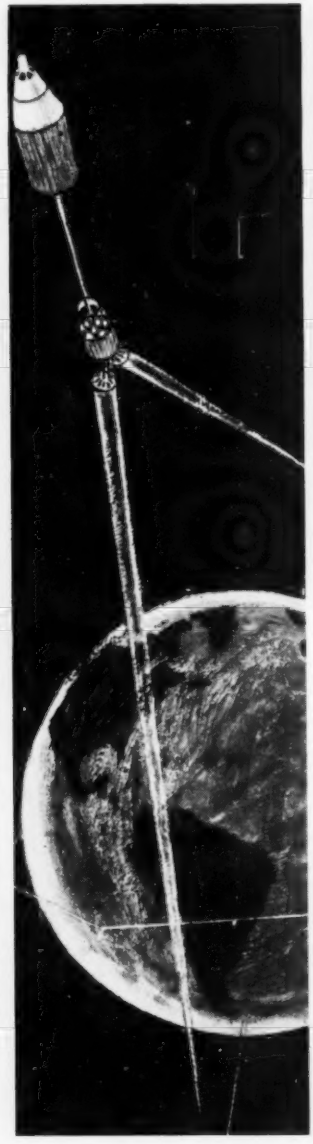

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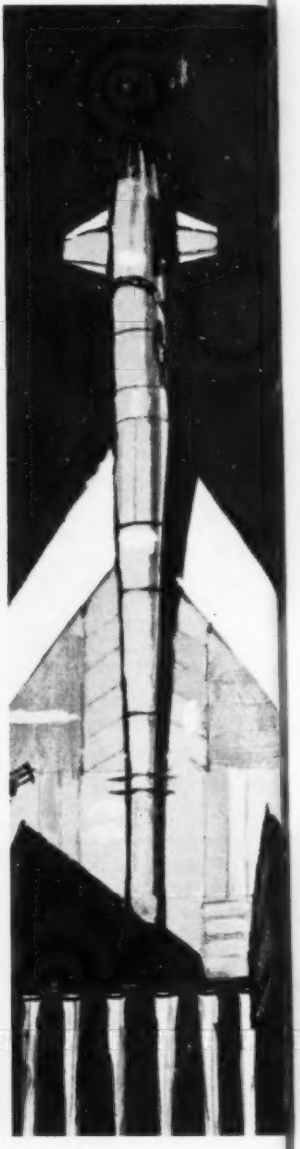

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## NORTH AMERICAN AVIATION

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# THE PERIPHERAL WEAPON IN WARTIME: a case study[1]

*By ROBIN D. S. HIGHAM, Ph.D.*
*University of North Carolina*

A peripheral weapon may be described as one which fails to gain full support from either the military tacticians or the civilian administrators and financiers. Because such a weapon rarely receives major backing, it seldom becomes an integral part of the nation's arsenal. It may never even go into operational service. This is because it lacks the attractiveness to obtain quick decisions at the highest levels. Its problems become enmeshed in the slower turning routines of the machinery of government, the victim of the many vested interests who for various reasons either do not want it or accept it with bad grace and intend to destroy it through discrediting the optimistic schedules put forward by its proponents. And the very ambitious claims of its supporters, accentuated by its detractors, make it the object of suspicion on the part of both policy-makers and career men.

Marginal armaments consume time, money and talent just as the major programmes do. They have many of the same problems that encumber their more successful rivals, but they have the additional disadvantage that their whole programme receives less in the way of high-level backing, waits longer for essential decisions, gets less money, suffers from discontinuity of association of top personnel, and obtains less in the way of vital overall guidance. All of this means in practical terms that the whole operation will drag on and in the end produce a weapon which is out of date when, if ever, it reaches operational units.

Nevertheless, peripheral weapons development deserves far more study than it has so far received, if for no other reason than it presents major difficulties in microcosm unhampered by the veil of secrecy which may shroud continuing projects. And in addition it presents special problems of its own. A number of such proposals are always in existence.

The British naval rigid airship[2] programme is a case in point.

The airship in its day was the equivalent technologically and politically of the missile. No one really knew much about its design or handling characteristics, let alone operational capabilities and costs, nor even its possible effectiveness. But it was judged to be able to bridge the English moat, to overfly seapower, and to outclass the defences, though there were arguments to the contrary.

[1]This article is based on my forthcoming book on the British rigid airship programme, 1908-1931, (London 1960).

[2]Airships were commonly divided into three classes. Non-rigids had no framework but maintained their shape simply by gas and air pressure. The semi-rigid had an exterior keel or spar, but lost its shape when the gas was allowed to escape. The rigid airship had a framework which was covered with fabric and retained its shape even after the gasbags were withdrawn completely from the interior. Non-rigids or blimps have now grown to 1,500,000 cubic feet capacity, whereas rigids exceeded 5,000,000 cf.

Count Zeppelin, a retired German cavalry general, was the man who did most to make the rigid airship an effective weapon.[3] At the beginning of the century he began a series of ships which showed definite signs of usefulness, and as a consequence the German budget was increased early in 1908 to include funds for airships. This was immediately made known to the government in London by the Attachés in Berlin. At the same time, Captain R. H. S. Bacon[4] and a group of younger officers had been urging an aeronautical programme upon the Admiralty. Bacon himself had been to the French air races at Rheims in 1908 as an official observer. Most of the naval agitators had been or were submariners, a branch only established in the Royal Navy in 1900. Fortunately for this crew the First Sea Lord was the redoubtable and politically skilful "Jackie" Fisher. Sometime in July he or someone "in his pay" suggested the idea to Prime Minister Asquith. After a Cabinet meeting at the end of the month, Asquith called Fisher aside and suggested to him that the navy undertake the development of a rigid airship for naval scouting purposes.[5] Thus the necessary decision was taken on the highest level at a very early stage of the game, but under the fear of foreign success. The Royal Navy had only taken up the newly-perfected submarine in 1900 in order to see what it could do and whether or not it was a real menace. This same concept was the original argument for initiating airship work.

Following the Asquithian order, the Committee of Imperial Defence discussed the division of responsibility between the Army, which had balloons and small airships, regarded as mobile balloons, and the Navy which then had nothing. It was decided that the Navy should undertake long-range oceanic work for the Fleet, but that the Army in addition to its own work, would train the first naval airship crew. At the same time, Vickers, the holder of the submarine-boat monopoly, was approached and asked to submit a proposal for an airship. A joint Navy-Vickers team at Barrow-in-Furness produced designs for *No. 1*, commonly known as *Mayfly*. The estimated cost was just over £28,000 with the Admiralty supplying certain essentials. In 1909 construction began and it was hoped that the ship would be ready to fly by mid-1910. In fact, as was to be expected, all sorts of snags appeared from a sinking shed to weight limitations, and she did not appear until May 1911. The builders were faced with metallurgical problems (duralumin was discovered in the search for a lightweight metal and was obtained from Germany), with textile failures in outer cover materials, with headaches over hydrogen supplies from Holland and Britain, and with myriad technicalities. In addition, a residue of old and stereotyped thinking was evident in the Admiralty insistence that the ship carry a capstan, anchors, and the proper hawsers for a vessel of such a size! She was an air *ship* and, therefore, had to conform to regulations. It was quite some time before it was realized that weight was the critical performance factor.[6] Her prob-

[3]A forthcoming work, *The Zeppelin in Combat*, (London 1961), by Douglas H. Robinson, will contain the most complete and accurate history of these ships.

[4]Bacon was later knighted and commanded the Dover Patrol in the First World War; he is also the author of a number of books including biographies of Lords Fisher and Jellicoe.

[5]Arthur Marder, ed., *Fear God and Dread Nought, II, the correspondence of Admiral of the Fleet Lord Fisher of Kilverstone*, (London 1956), II 186, 29 July 1908.

[6]Compromises in airships had to be made between speed, height-climbing ability (ceiling), range, armament, and ballast. As fuel was consumed gas had to be valved, but lift would be affected by temperature as well as altitude, and so ballast was carried both for trimming and manouvering as well as for release to create emergency lift. To the fixed weights of the structure, engines, etc., were added the disposable weights of fuel, ballast, etc. When the latter were subtracted from the former, the difference, if positive, was usable lift. In the case of *Mayfly*, the latter figure was, in May 1911, negative.

lems were confounded, too, by a change of administration at the Admiralty in 1910 when Fisher left and by the lack of attention that First Lord McKenna could give to naval affairs in the midst of the battle over the Budget of 1909 which led to a constitutional revolution by the end of 1911.

In May 1911 *No. 1* successfully spent several days at a floating mast in Cavendish Dock at Barrow, but was then taken in for modifications to enable her to rise off the water. On 24 September she was again withdrawn from her shed. But despite elaborate precautions she was struck by a squall and parted in the middle as weight-limitations had forced the removal of the keel. In attempting to get her back into the shed, she was almost completely wrecked. A Court of Inquiry was at once assembled and attended by the new First Lord, Winston Churchill. The opinion of Court was a foregone conclusion when its president remarked upon seeing the evidence for the first time, "The work of a lunatic."[7] Though exonerated, airshipmen became *persona non grata* to the Admiralty. Captain Murray Sueter,[8] who had succeeded Bacon in 1909 as Inspecting Captain of Airships and as a member of the brand-new scientific Advisory Committee for Aeronautics established by the Cabinet, was placed on half-pay early in 1912. Yet this was done just at the time when the Germans, having lost various ships, had decided to order several for their navy.

The change of regime at the Admiralty allowed the critics and opponents to eliminate what they regarded as a waste of money as well as to settle some old scores hanging over from the Fisher regime. This is a danger which any enterprise faces, but no scientific programme should be abandoned after just one accident.

Aeroplanes absorbed the First Lord's interest. But hardly had the decision to eliminate airships been made than it became obvious that it would have to be rescinded. By April 1912 the Admiralty had decided to buy a Zeppelin, if one could be obtained. This decision was influenced by Third Sea Lord Jellicoe's flight in one on 15 November, 1911. In June Sueter and Col. Mervyn O'Gorman, commandant of the Royal Aircraft Factory, now the R. A. E., at Farnborough, went abroad disguised as Americans and toured French, German, Austrian, and Italian facilities. They had been sent by the C. I. D. at the urging of the sub-committee on aviation's chairman, Secretary for War J. E. B. Seely.[9] During their visit they flew in a commercial Zeppelin which was training the first German naval airship crew. Upon their return they were able to supplement the urgent reports of the military and naval Attachés. The sub-committee at once urged further action. The naval airship section was reconstituted and airships came under a full-dress discussion at the meetings of the entire C. I. D. early in the new year when the whole question of invasion was under reconsideration.[10] It was decided, after considerable argument, to build one experimental rigid and to acquire some larger non-rigids from abroad in order to assess the danger from these vessels. By this date, the idea of using the rigid as a naval scout had become obscured by time and arguments

[7]Quoted by Fisher, *Fear God and Dread Nought*, III, 348; but also commonly found in earlier accounts.

[8]Rear-Admiral Sir Murray Fraser Sueter, 1872-1960, followed his long career in the Navy with 25 years in Parliament. He worked on submarines, tanks, aeroplanes, and airships and was the Rickover of his day.

[9]Seely is a man with a variable reputation. He had been Under-Secretary under Haldane at the War Office and was keenly interested in aviation, but he appears to have been weak in character. He resigned after the Curragh incident in 1914. In 1919 he was made Under-Secretary of State for Air but disagreed with Churchill, then Secretary for War and Air, and resigned again.

[10]The full details of these discussions will be available in Arthur Marder's *From Dread Nought to Scapa Flow: The Royal Navy in the Fisher Era.* (London, 1960/61).

over anti-airship armaments, as the Admiralty regarded them simply as *German* weapons.

The airship was now being challenged as a weapon by the considerable improvement in aeroplanes and the creation of the Royal Flying Corps in May 1912. Churchill and other aeroplane enthusiasts claimed that winged machines would soon end the Zeppelin menace. But public fears were aroused by a cry from Sheerness that a Zeppelin had actually been overhead on the night of 14 October 1912—an unfounded allegation.[11]

Although the Cabinet had attempted to avoid a jurisdictional dispute by allotting all airships to the Admiralty and aeroplanes to the War Office, the infant RFC never achieved unity. The Navy refused to relinquish its air arm, then developing seaplanes, and just before the outbreak of war managed to have it established as the Royal Naval Air Service.

While aeroplanes might be rapidly developed, airships were quite a different matter. Vickers by 1913 had dispersed their staff and had to recollect them; rigids had already increased so in size that a new shed had to be built, and the new German methods of construction needed to be investigated. At the same time, Sueter persuaded the Admiralty not again to place all its eggs in one basket, and so two rigids were ordered from Armstrong Whitworth's. *Nos. 14* and *15* were never begun, however. Due to various delays, including the acquisition by the French of constructional details from a straying German Zeppelin (LZ16) which landed on a French Army drill-field, the contract for *No. 9* was not completed until March 1914. Early in 1915 the whole operation was cancelled by Churchill on the grounds that the war would be over by the end of the summer.[12] But at the same time Lord Fisher, back in as First Sea Lord, was rushing the production of blimps, small non-rigid airships of the type used by the Army in *Mayfly's* time, as anti-submarine ships. Concurrently Zeppelins began to bomb England.

In Spring 1915 the Admiralty underwent another change of administration, A. J. Balfour, the philosophic ex-Prime Minister, replacing Churchill, and the scientific Sir Henry Jackson becoming the dynamic Fisher's successor. The Royal Navy was plagued throughout the First World War with a constant changing of the High Command. There were four First Lords and five First Sea Lords in four years. The best, or at least the busiest pair, were Churchill and Fisher. But because of the changes, and the attitude prevalent at first that the war would be over shortly, lower levels at Whitehall either had no direction or played safe. Peripheral programmes were, thus, unable to command attention, for who would risk his career for one? Life at the Admiralty was actually described as quieter than in peacetime.[13]

[11]This incident aroused questions in Parliament, to which one answer given was that aerial trespassers would be dealt with by the police under the Air Navigation Act of 1910. Zeppelin had actually made a long-distance flight that night, but had not been near England, though he could have made such a voyage.

[12]Churchill's remarks on airships in *The World Crisis*, (New York 1923), I, 338, must be viewed in the light of the discredited position of airships in 1922. They must also be seen against the backdrop of the Liberal programme of 1906 and onwards. Churchill's great companion in those preward days was Lloyd George, whose experience in 1908 it had been to see a Zeppelin burn up. As early as December 1914 minutes were circulating at the Board of Admiralty level urging the cancellation of *No.* 9, and even Vickers were not working hard upon her as they lacked the conviction that she was as important as repairing shipping. The Cabinet had ordered in 1914 that no vessels should be laid down which could not be completed in 1915 (*Fear God and Dread Nought*, III, 328).

[13]See the articles by R. MacGregor Dawson, "The Cabinet Minister and Administration," *Canadian Journal of Economics and Political Science*, VI, No. 3, (August 1940), 325-358, and IX, No. 1, (February 1943), 1-38. Also *Fear God and Dread Nought*, III, 308; Fisher to Jellicoe, 12 February, 1916.

*By 1908 the Airship showed improvement. It now carried both vertical controls and rudders.*

As soon as Balfour was comfortably settled in, he called a conference on 19 June 1915 to deal with airships. It was decided that the whole blimp programme should be rapidly pushed ahead and that at the same time rigids should be revived. *No. 9* was at once ordered completed and Vickers were requested to design an improved type. Neither of these tasks were simple. The design team had been dispersed and its principals had enlisted in the Army, the materials in storage had deteriorated, in some cases below acceptable strengths, and most of the workers were engaged in the construction and repair of ships, while the only airship constructional shed in existence, which was of limited dimensions, had been commandeered by the RNAS for a flying station. No one was convinced that rigid airships were worthwhile, for Vickers had already had its fingers burned twice on such contracts. The result was that further constructional work on *No. 9* was delayed until winter and the design of the 23-class[14] was restricted to a fattening of *No. 9* to increase lift and add two more engines. Yet at this same date the German designers were proceeding with ships of twice the size and of far better performance.[15] Admiralty supervision was established with a section of the Royal Corps of Naval Constructors taking over design in October 1915, shortly after Sueter was relieved of his responsibility for the whole RNAS (including tank and armoured car development) so that he might concentrate on airships.

At the end of the year a deserter from the Schütte-Lanz factory, where German wooden rigids were made, brought to the Admiralty via Switzerland plans of the latest SL type. By clever use of Herr Müller, as he was dubbed, the RCNC and Short Brothers produced the only British wooden ships, *R 31* and *32*, delivered in 1918 and 1919 respectively. These new designs and tests of structural parts consumed time. Yet concurrently the design

[14]The pre-fix *R* for rigid was not authorized until early 1917 and No. 26 was the first ship to carry it. Ships numbered 41-79 and 81-99 were never laid down and no clear information as to the allocation of these numbers seems to be obtainable.

[15]See Douglas H. Robinson, "The Zeppelin in Combat," USNI *Proceedings*, July 1956, 742-761. The 23-class British ships were just under one million cubic feet capacity and cruised at a little over 40 mph, whereas the German ships were just under double the size, cruised about 10 mph faster, and had nearly ten times the ceiling as well as a much better range.

team was producing a keelless model of the 23-class known as the 23X, and Sueter and his chief thinker, Captain E. A. D. Masterman, were trying to bring other firms into the business and provide them with sheds. The cost of the latter rose alarmingly from about £110,000 for Vickers' Walney Island shed of 1913 to £470,000 for the 1916 700 x 150 x 110 foot high sheds to over £800,000 by 1917 for the uncompleted Vickers facility at Flookburgh, Lancashire. Not only did these buildings need 6,000 tons of steel, but they required large flat landing fields. In consequence, they were often erected in uninhabited areas and the constructors found themselves forced to build entire self-contained villages in order to be able to have an available work force. And in addition to these sheds, operational stations had to be constructed to house the ships when the makers finished them, and these consumed more man power, materials, and money.

The year 1916 was full of surprises and difficulties. Early in the year Mr. Noel Pemberton-Billing, MP, sometime owner of the Supermarine Aviation Company, sold his business and began to deliver a notable attack on the Asquithian coalition for its loss of air supremacy over the Western Front. His charges were investigated, three Reports rendered,[16] the Liberal coalition brought down, Lloyd George installed as Prime Minister, and the Air Ministry brought into being, followed a year later on 1 April 1918 (the beginning of the new financial year) by the formation of the Royal Air Force. Though airships remained under the Admiralty, RAF officers acted as advisers to the Admiralty Operations Department on their employment. One other unlooked-for effect was the exile of Sueter after almost eight years in charge. The new government placed Sir Edward Carson, a jurist, in the post of First Lord and Sir John Jellicoe became First Sea Lord. Sueter, whose Rigid Airship Committee co-ordinating the work of airship development was regarded by Balfour as fighting the next war, was sent to command blimps on the Adriatic. A year later he was recalled to testify at a court-martial, wrote to the king, and was discharged. It may be argued that he had failed to produce operational rigids, but his marginal programme had hardly had the necessary support or the time in which to create combat-worthy vessels.

In late May 1916 the Battle of Jutland was fought. The Grand Fleet and Jellicoe its commander, already aware of Zeppelins and bombarded with letters from Fisher saying that the Zeppelins would get them if they didn't watch out, became convinced that the German escape had been engineered by airships. The demand for long-range airship scouts and escorts for the Fleet increased, but none were available. *No. 9* only flew late in the year and was returned to the makers as unsatisfactory until April 1917.

Then on 24 September, the fifth anniversary of the *Mayfly* disaster, the six-weeks old Zeppelin *L 33* was brought down virtually intact on a remote part of the Essex coast. Unlooted, she was at once laid under strict guard and an RCNC team sent down to make complete drawings of her. This was the first Zeppelin that most of the constructors had seen in useful form. But her acquisition was both a blessing and a blow. While she provided the Admiralty with the latest German operational concepts, she also indicated how miserably far behind the British designs were. *No. 9* was based on a 1912 German prototype and had not yet flown. The next two classes came nowhere near the performance of *L 33*. The only ships which could approach her were the 31-class, and they were still in the preliminary stages.

It was decided almost at once to cancel two of the 23X-class not yet laid down (*R28* and *R30*) and to proceed with 33-class ships. Soon Admiralty planners called for approval of sixteen of these

[16]See *Cd.* 8192 (1916), *Cd.* 8194 (1916), and *Cd.* 8191 (1916).

*The British dirigible R-34 after she had crossed the Atlantic in 1919.*

(*R33-49*), but the Treasury then stepped in and refused to authorize more of these £350,000 ships [17] than could be housed; so the total was reduced to eleven. Then it was discovered that the super sheds erected in 1916 would not hold two of the new class, but that only one at a time could be constructed in each. The only facility which would have been able to handle them in pairs was that at Flookburgh and the Minister of Munitions, Churchill, had refused the necessary steel. But even if these difficulties had been overcome and the optimistic delivery dates had been realized, the ships would have been three years behind German design.

The arrival of *L 33* had the additional unfortunate effect of once again requiring the manufacturers to retool and retrain. The cancellation of the 23X ships destroyed hopes of immediate mass-production and, inefficient as the early ships were, confined the few operational models almost exclusively to training in lieu of escort duty at sea. This latter function was in part taken care of by improved blimps with performance in speed and endurance equal to the rigids, but the Grand Fleet never got its eyes as aircraft carriers also failed to appear.

At about the same time that *L 33* came down, Vickers's Barnes Wallis[18] produced a new design known as *R 80*. This latter ship was a teardrop evolved logically from a sphere in a stream of air and went ahead of the German aerodynamic work which was slowly evolving from the parallel-sided Zahm-shaped.[19]

[17]The cost of British airships steadily increased with size and wartime inflation. *Mayfly* was said to have cost about £70,000 by the time alterations were completed, *No. 9* ran to about £125,000, while *R* 80 was contracted for at £275,000.

[18]Dr. Wallis assisted in the design of *No.* 9 and of the 23-class and the later *R* 100. He then moved to geodetic aeroplanes, the Wellington bomber, the dambusting bombs, and is currently working on the Swallow Jet design.

[19]Prof. A. F. Zahm, an American physicist, laid down that the ideal shape for airships was a parallel-sided one with the curvature of the bow $x$ times the hull cross-section radii and the stern $y$ times.

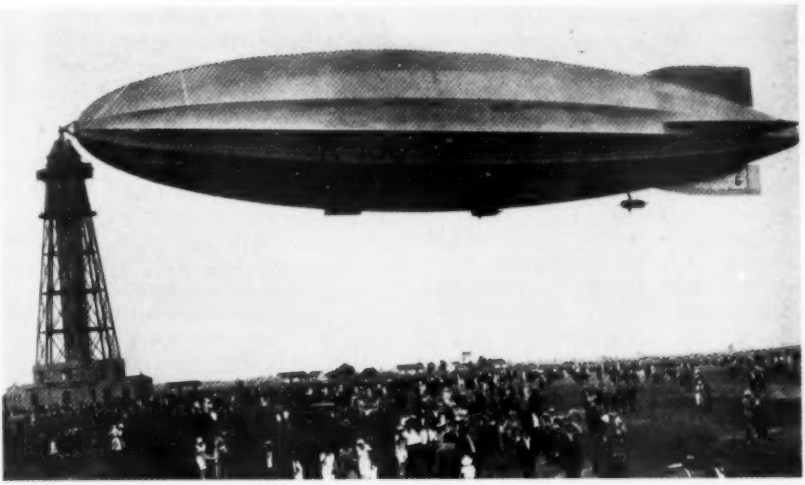
Perhaps the most interesting thing about *R 80* is the fact that she was designed to the same shed limitations as the 23-class, but had about twice the performance. Characteristically, the Admiralty refused to take any responsibility for her and she was thus practically a contracted-for private venture. The explanation for this lies in part in the fact that the RCNC group were too busy with the 33-class designs and modifications to be bothered with checking Vickers's work. Moreover, Vickers itself was becoming a peripheral airship company owing to its lack of adequate building facilities. This was made quite evident in Spring 1918 when a contract for another 80-class to occupy the bay and the work force which had just completed *R 26* was denied. *R 80* herself was not accepted until 1921 and flew but 73 hours before being stored and eventually tested to destruction in the 1924 scientific programme.[20]

The whole treatment of Vickers from 1909 to 1921 raises the pertinent question: what should be the relationship between the government and its private contractors in experimental programmes? In submarines Vickers had been allowed a ten-year monopoly of the patents which it acquired from the American Holland Company. In addition to this, it made it a habit to lose on the first few vessels in order to discourage other manufacturers from invading the field. Vickers asked for the same privilege with regard to airships, but having indicated approval, the Admiralty then failed to agree in the contract. Vickers took a loss on *No. 1*. On *No. 9* they again agreed to contract for a fixed price, as they did in fact for all their ships. But their competitors, brought into the field during the war and trained, supplied with plans, parts and supervision by Vickers, contracted on a cost-plus-ten-per-cent basis and in the case of Armstrong Whitworth's and Beardmore's had their sheds built for them by the Admiralty. Short Brothers, however, borrowed the money for their shed from the Admiralty and were to pay it off with interest at the rate of half the ten-per-cent profit. At the end of the war only Vickers of the four had no orders and no facilities for the production of commercial airships suitable for Imperial or trans-Atlantic services. Short's plant was commandeered in 1919 and became the Royal Airship Works.

The explanation for this phenomenon would seem to be psychological. Vickers did all the pioneer work, the basic designs of the first three types, and on its ships most of the first modifications were introduced. Its competitors had to make some modifications, too, but as their ships were generally behind those at Barrow, the blue-prints and general principles were available. Because the staff at Barrow had constantly to undertake experimental work, Vickers's anticipated target dates passed silently by unmet. Officials at the Admiralty, minutes show, came to regard Vickers as obstructionist, when in fact every delay and modification cost them money. Moreover, some of the minutes of the meetings of the Rigid Airship Committee[21] make it clear that there was friction between the experienced Vickers staff and the RCNC. The working rapport between company and Admiralty became disrupted and what had been understandings as to proceeding with a request, for

[20]These tests were conducted in connection with the scientific programme for the Burney Scheme, initiated after the findings in the *R*38 calamity; see ARC *Reports and Memoranda Nos.* 800 and 970.

[21]The Rigid Airship Committee was an Admiralty co-ordinating and planning body headed by Sueter and attended by the Director of Naval Construction and the Engineer-in-Chief as well as by airship experts. It appears to have operated in 1916 and to have been reconstituted by Sir Alan Anderson of the Orient Lines while he was Controller of the Admiralty in mid-1918. The only extant minutes of its meetings are the Masterman copies in the possession of Lord Ventry, and the file is incomplete as Masterman was posted to Barrow in mid-1916.



*The big British airship R-100 rests at her mooring in Montreal, Canada, after a 79-hour flight across the Atlantic from Cardington, England. Built in the 1920's she carried five million cubic feet of gas.*

instance, before a formal contract had been completed, became instead a case of work suggested by the Admiralty having to be reconverted on the grounds that it was unauthorized.

Especially in the peripheral weapons programme, the government has a responsibility to agree to an equitable basis upon which work shall be done by private companies so that those organizations are not placed in jeopardy or even rendered *hors de combat* at the crucial moment. Increasingly this means making adequate allowance for the expenses of research, top design teams, experimental work, special tools, jigs, and plants, loss of normal business, and a just profit.

Two 33-class ships were produced. *R 33* was completed early in 1919 as was her sister ship (*R34*). She was soon transferred to the Controller-General of Civil Aviation at the Air Ministry and was employed in attempts to interest civil firms in airship lines. *R 33* was the longest lived of the British ships and had done 800 hours by the end of 1926, when she was laid up and later demolished. With her, the experiments begun in 1918 with *No. 23* in the carriage of two fighters were continued, though no operational usage ever developed. *R34* became the more noteworthy ship, though shorter lived. She made the first aerial trans-Atlantic round-trip from Scotland to Long Island and back to England in July 1919, shortly after Alcock and Brown had flown from Newfoundland to Ireland. There continue to be discussions of this feat which was more than merely a publicity stunt, although initiated for that purpose by American aviation interests led by Alan R. Hawley, President of the Aero Club of America.[22] The flight was accomplished by an Admiralty ship on loan to the Air Ministry, but the whole trip initiated discussions which resulted in airships being transferred to the Air Ministry as the Admiralty saw them as

[22]The whole American airship programme is being made into a book by Charles L. Keller, a Sperry Company engineer, who has a detailed section on the American background of this incident.

an economic liability. But the motive was deeper than that. The ultimate idea was to discredit the Air Ministry and to recover the naval air service *in toto*. *R34*, then being used to train Americans, would have been retained as an operational ship if she had not crashed in January 1921 after flying about 500 hours.

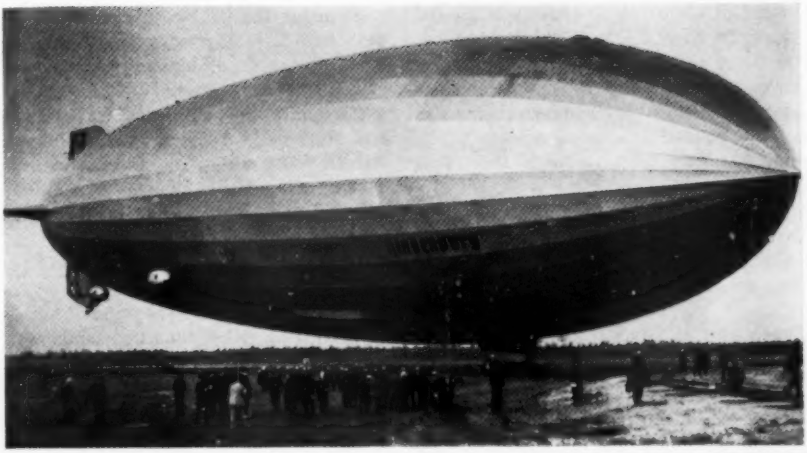
No sooner were the 33-class under construction, than later intelligence reports decided the Admiralty to start once again to tinker with design. Sueter had once laid down in a committee meeting that three prototypes should always be ordered: one for operational use, one for operational experiments and modifications, and one as a basis for the next generation. Unfortunately this was never done in the airship programme. It may be suggested that this was due to a failure to think in the munificent terms demanded by the new technological enterprises. After all, three prototype 33-class ships would cost over £1,000,000! In 1913 there had been hesitation to order one at £90,000[23] and peacetime habits are hard to shed.

The first alteration of the 33-class, after only two ships had been started, were the 35's. Of the three laid down, only one (*R36*) was converted to a civil ship and first flew in 1921, one was scrapped (*R35*) and the other (*R37*) stored when 90 per cent completed and then scrapped in 1924 to make room for a new design. The second alteration of the 33-class was basically a new design, though the Admiralty maintained that there was nothing novel about it.[24] The only ship of the group whose construction was not cancelled early in 1919 was the ill-fated *R 38*. This ship was an attempt to combine two opposed schools of thought on airship design. Captain Masterman argued that British airships did not need superior height-climbing abilities if they carried a sufficient defensive armament; moreover, to achieve altitude they would have to sacrifice strength and armament, while over the North Sea visibility would not permit effective observation from great altitudes; instead of ceiling, Masterman favoured heavy armament and if the ship could also be used to the westwards against U-boats, then a heavy bombload and a 75 mm gun were far more important. For the area in which patrols were wanted, Scotland-Norway, airships were unlikely to meet aeroplanes, but might have to fight Zeppelins. Masterman felt that ability to manouver coupled with a long-range dorsal armament was the best solution. His opponents argued for height and speed and therefore demanded a lightly-constructed ship on the manner of German height-climbers, some of which could by the end of the war reach 24,000 feet. These altercations resulted in the setting of impossible design requirements including a 200-hour endurance. The design staff simply could not plan a ship which could meet 1919 operational needs and still be built in any existing shed. So the design was modified.[25] Nevertheless, the ship produced was far too weak for the low-level manouvers which were attempted with it, and these in themselves proved that the design was unsuitable for maritime reconnaissance, especially in the Western approaches. The basic problem was that no clear concept of the role of British airships was possible until operational experience had been accumulated and digested. Reliance upon what

[23]The cost of the rigid airship programme became a myth. Churchill talked of £40,000,000 (*The World Crisis*, I, 338), as did others, but the total was not even £ 14,000,000. If costs are proportioned between the blimp and rigid programmes, the latter cost about £5,000,000. The rigids only flew 1528 hours up to the end of 1918 compared to about 85,000 hours for blimps.

[24]The RAF Court of Inquiry report and the Admiralty investigation were published, see *Flight*, 13 October 1921, 571.

[25]This material is contained in the Admiralty Report (see note 22) and in archival sources in London. ARC *Report and Memoranda, No.* 775 contains much damning evidence produced by the scientific investigators.



*The HINDENBURG, tops in rigid airship design, was destroyed by fire in 1937. This brought progress in rigid airship design to a stall.*

were supposed to be German operational concepts and usage caused distortion in viewing British objectives. By 1918 flying-boats and blimps controlled the North Sea and the High Seas Fleet was far less of a danger with American battleships at Scapa, despite the attacks on Norwegian convoys, than were U-boats in the Atlantic. To follow German practice which was concerned with limited North Sea operations and the bombing of England, actually assuming a very minor role by this time, was entirely misleading and merely resulted in producing the wrong ship.

A particular difficulty with airships was the inability for various reasons, including lack of constructional and operational housing, to be able to produce several prototypes. Thus each design became a gamble with future developments in science and war.

*R 38* was begun late in 1918 but completion was attenuated and delayed by the whole question of the transfer of airships from the Admiralty to the Air Ministry, by the requisitioning of Short Brothers Cardington shed for the Royal Airship Works, and by the purchase of the ship by the United States Navy, (who named her *ZR-2*), not to mention immediate service and civilian post-war economic problems. As a result, *R 38* did not fly until June 1921, and broke up in the air in August after only 56 hours.

The last of the wartime British airships is a stark illustration of the dangers of experimental work mixed with insufficient knowledge and unrealistic operational requirements. The findings of the investigators after the accident[26] criticized the failure to ease the design requirements after the Armistice, the lack of redesign after post-war knowledge was gathered from Germany, the ignorance of British and other wind tunnel and practical work available in Aeronautical Research Committee reports, and pure lack of experience. To these strictures must be added the general apathy towards airships, the lack of competent overall supervision after the expulsion of Sueter, the antipathy of the blimp establishment at Kingsnorth for the RCNC, and last, but not least, the multiple hats which the chief designer wore. He was not only the nominal, and therefore responsible, creator, but he was also commanding

[26]See note 23.

officer at Cardington, consultant to the American Navy and actually in Washington twice during construction, the Treasury's local deputy as all heads of quasi-independent establishments are in peacetime, and managing-director of a manufacturing concern with the usual labour and other troubles.

And as if this were not enough, the Director of Research and Supply, not an airshipman, was actually in Eqypt at the time of flying trials. Thus when the officer in charge of the test programme wanted to call them off, he was overruled by his immediate commander and unable to appeal to his superior. He was killed on the next flight.

The troubles of *R 38* were in part, too, difficulties of any quasi-experimental programme in peace and retrenchment. Owing to the fact that the Army and Navy had only consented to the formation of the RAF as, in their view, a temporary measure, the Chief of the Air Staff had to meet a constant running attack aimed at the complete elimination of the third service. Under these circumstances he had to shed all risky charges against the £15,000,000 normal annual budget. Airships were still experimental and unproven, despite *R 34*'s gallant Atlantic flight, and they were horribly expensive even to store. The attempts of airshipmen to obtain a civilian patron in the form of an Imperial airline failed, even though the Air Ministry would have supported such a move. So they were dropped and the sheds sold for scarp. By 1924 only Cardington, RAF College Cranwell, and Howden remained, and the latter was ready for demolition.

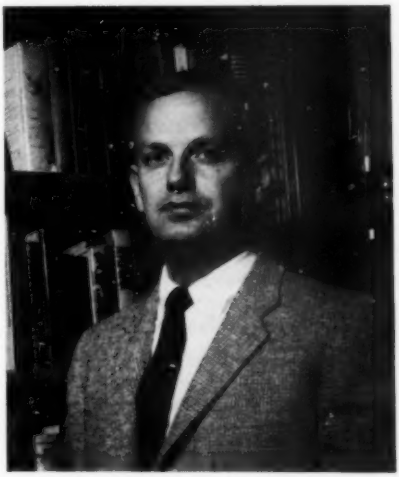
Some of the problems delt with here obviously are common to all weapon development programmes; others accrue principally to preipheral ones. All schemes are subject to undue optimism and unforseen delays, early failures (which must not be allowed to overrule continuous development), skepticism both at high levels and in regard to the future usefulness of the item, the embarrassment caused by the successes of rivals both at home and abroad, the lag in design that ensues when the emphasis is on copying rather than upon independent development, and confusion of mission or missions resulting in unworkable compromises. All programmes are liable to jurisdictional disputes, political and vested interests, and even personal prejudices.

In addition to these handicaps, the peripheral weapon suffers from its lack of adequate support at the highest levels, both governmental and commercial, from excessive time lag due to lack of priorities, to delays owing to a limited number of prototypes and no mass production coupled with virtually no operational experience. Moreover, the marginal weapon gathers its personnel in wartime from draftees, loaned, eccentric and/or unwanted personnel, and these, along with career men, begin to desert as soon as demobilization begins, if not before. And peace brings with it other difficulties. The very existence of the service may be at stake, experimental money will be taken to pay war debts, and military expenditure in general will be pared to the bone. The weapon that has not established itself and acquired its constituents and highly-placed friends, is a very poor risk and will most likely be shunned by all from private to prime minister.

# MITCHELL, MOFFETT, and AIR POWER

By GERALD E. WHEELER

Many consider the relatively peaceful years of the 1920's and early 30's the incubation period for American air power. During this time Army and Navy airmen thought seriously about the possible uses for military aviation, for technological developments and aviation materiel improvements had reached such a level that theorists were inspired to hope that their dreams might be turned into action. However, institutional changes in the American armed services lagged behind the development of theory and the forward strides in technology. By 1935 Army aviation still felt itself tied down, and auxiliary to the "queen of battles" —the infantry. Naval aviation had strode forth to world leadership in techniques of handling aircraft at sea, but American sea power was third to Great Britain and Japan in terms of carrier air strength. Outstanding in this period as the leaders in the development of American air power were Brigadier General William Mitchell and Rear Admiral William A. Moffett. "Billy" Mitchell was the Assistant Chief of the Army Air Service until 1925, and one of the leading propagandists for Army aviation after his resignation from the service in 1926. Admiral Moffett became the first Chief of the Bureau of Aeronautics in 1921 and held this job until his untimely death in 1933. While pursuing the same goal, to make American air power more effective in promoting national interests, these two service leaders worked from radically different principles; and yet they developed doctrines of air power that are more easily compared than contrasted.



GERALD E. WHEELER

Before turning to an analysis of the theories of Mitchell and Moffett, some notice should be taken of institutional and historical limitations that influenced the thinking of these men.

In viewing General Mitchell as an apostle of air power, one should not lose sight of two facts related to the Army as an institution: Mitchell was trying to convert his own military service as well as the American public; and he was an "outsider," to the extent that he neither belonged to a more traditional corps of the Army, nor was he a graduate of the United States Military Academy. Mitchell received a regular commission as a result of creditable service in the Spanish-American War. If he expected

to earn a general's stars, Mitchell normally would have had to do it through an outstanding record, particularly since he was not an engineer or an infantryman.

By the end of World War I Billy Mitchell had gathered about him a coterie of loyal airmen, the majority of whom were not West Pointers. These flyers were devoted to him, enthusiastic about the Army Air Service, and not militarily educated to the view that wars were won by infantry occupation of an enemy's territory after military resistance had been shattered on the ground. All had a stake in convincing a skeptical Army that a final military decision could be reached through air power; and all had a personal interest, varying in intensity of course, in remaining in Army aviation and seeing the Air Service grow. Because of organization into squadrons, groups, wings, brigades, and divisions, the Air Service gave many young officers an early tactical command with fairly heavy responsibilities. To satisfy the command requirements, these men received temporary promotions far ahead of their non-flying contemporaries, and thus their personal interest in the growth of the Air Service was enhanced. This role of self-interest probably was not so great, as many would suspect, in coloring the activities of Mitchell and his acolytes; yet all who have served within the protective structure of a military system recognize the presence of the self-interest factor.

In developing their post-war arguments about the effectiveness of air power, Air Service people were terribly hampered by the bald fact that *air power had not been decisive* in the World War. German surrender had been obtained by the traditional pressures of infantry warfare and sea blockade, aided mightily by internal problems within the Reich, and the glowing promises of negotiation under the cover of President Wilson's Fourteen Points. Contemporaries and biographers of Mitchell have noted his disappointment at the war's ending for he was sure, as he reported, "that if the war lasted, air power would decide it." Thus Mitchell and his followers had to base their future analyses upon a few campaigns, like that of the St. Mihiel salient of September 1918, or upon what might have happened had the war lasted a year longer. It takes little imagination to see why Army ground commanders gave little credence to the analyses and prophecies of the Mitchellites. From the infantry viewpoint the flyers had engaged in spectacular individual combat that decided nothing; they had avoided the grimness of trench warfare; and aviation had done little to alter the fact that the rifleman had "won" the war.

Rear Admiral Moffett brought to his position as Chief of the Bureau of Aeronautics a background that contrasts strikingly with that of General Mitchell. A graduate of the class of 1890 at the United States Naval Academy, Moffett served afloat and ashore in the line of the Navy. He knew his ships and men, was grounded in the teachings of Mahan, and had a service reputation as a good shiphandler and administrator, not a theoretician. Serving as Director of Naval Aviation, the Admiral took charge of the Bureau of Aeronautics upon its creation by Congress in the summer of 1921. Unlike Mitchell, Moffett brought to his job no deep-seated belief that air power had made armies and navies useless anachronisms. Like the Directors of Naval Aviation before him, Moffett looked upon naval aviation as a useful auxiliary to the fleet. He knew that aviation could serve the Navy well, and considered the Bureau of Aeronautics to be an organization designed to develop naval aviation systematically as technological advances were made.

Working under Moffett was a group of aviators as deeply interested in flying and the naval service as its Army contemporaries. As a group it had a much higher percentage of Naval Academy graduates in it than West Point graduates in the Army Air Service. Non-

*Rear Admiral W. A. Moffett and Lieutenant-Commander C. Rosendahl, of the U. S. Navy, in the control car of the AKRON. Admiral Moffett, then chief of the Navy's Bureau of Aeronautics, was lost with the ship in 1933.*

Academy pilots were concentrated in the lower ranks, and by 1926 none had risen above the rank of lieutenant. All command and executive officer positions in naval aviation were held by Academy graduates. After 1922 no regular line officers, with the exception of a few limited duty officers from the enlisted ranks, were appointed unless they were graduates of the Naval Academy. What this meant was that the average naval aviator considered himself a line officer first, in training for command at sea, and a naval aviator second. Most aviators expected to return to "general service" after serving in aviation for a number of years, and all knew that minor commands and later capital ship commands were necessary if they were to become admirals. A handful of non-Academy graduates from this era reached the rank of captain, and only one (Vice Admiral A. M. Pride) ever became a flag officer.

Like their opposite numbers in the Army Air Service, the aviators chafed under the conservative control over them exercised by the non-flying naval officers. Yet very few desired a new service devoted completely to aviation, and not many more favored the establishment of a separate air corps within the Navy wherein an officer could serve a full career. On the whole the naval aviators preferred the administrative position they occupied, and merely wanted assurances that they would not be discriminated against if they remained in aviation and did not seek sea commands while below the rank of captain.

A fair amount of space has been used here to describe the institutional environment of the Army and Navy aviators because it accounts, in part, for the attitudes taken toward the question of whether there should be a new armed service—one devoted to aviation alone. While each service had its own unique set of problems and solutions for them, both were decisively affected by certain national attitudes toward the military.

The fact that the nation was never in any genuine danger of war or invasion controlled American thinking during the 1920's and early '30's. Four years of conflict had left the major powers exhausted of money, military resources, and aggressive spirit. Only America had emerged from the struggle in a stronger economic position than she possessed in 1914; for the World War resulted in the financial change from a debtor to a creditor nation. Americans in the 1920's desired only a continuation of peace, service on the loans they had made to their allies, and retrenchment in government expenses to free capital for further business expansion. Refusal to join the League of Nations meant non-commitment to the solution of Europe's problems, both economic and military. The typical American believed that his Army and Navy had two defensive missions: protect the United States from invasion, and guard American nationals and their interests abroad. Following the Pact of Paris (Kellogg-Briand Pact) of 1928, many accepted the statement that war "as an instrument of national policy" had been renounced. The armed forces, therefore, became objects for intense economizing.

America's geographical position reinforced the sense of national security. Bounded by broad oceans and friendly neighbors, the man-in-the-street could not imagine the nation being easily attacked. Military aircraft had strained mightily to cross the Atlantic, and the possibility of attacking America with a military load appeared fantastic to many. Most agreed that if an attack did come by air, it would have to be launched from aircraft carriers. Thus many military observers believed that the role of the Air Service was to beat down an attack were an aggressor to evade the Navy, America's "first line of defense." Military and civilian alike agreed that the role of the Army and Navy was principally defensive since America would never precipitate an offensive war.

In these halcyon years of the 1920's the American Congress, charged with the responsibility of creating and maintaining the armed forces, worked with little feeling of imminent danger. Economy became a byword and every means possible of reducing military duplication of effort was investigated. Congress closely questioned the Army and Navy to see why they could not use the same aircraft; and the feasibility of merging Army, Navy, and civilian aviation into a United Air Service was the subject of several investigations. Legislators at times reviewed the possibility of establishing a Department of Defense with under-secretaries for the Army, Navy, and United Air Service, but in the end the old systems survived. Senators and representatives feared that the creation of a Defense Department would require a "super-staff" to advise it, and this seemed too militaristic, almost Prussian, for the tranquil times. For the military services this all meant lean budgets and skeletonized operating forces. In the field of military aircraft production many prototypes were privately developed with very little in the way of government research funds, but few models got into production. By 1926 the American aircraft industry almost succumbed, and only large Army and Navy aircraft orders based on new five-year programs saved it. Both services, and the industry, felt the need for a national "air policy;" but the times were not conducive to long-term planning.

Those charged with the development of American Army and Navy aviation had to work in this milieu and within the military institutions described. Mitchell and Moffett could move no faster than Congress could learn, and they could not improvise new doctrines of air power use until their service brothers had greater faith in the aviation on hand.

In his struggle to re-orient American military thinking toward primary reliance on air power, General Mitchell wrote much, spoke even more, and gained a considerable following for his

viewpoint. With the advantages of hindsight, it is possible to see that Mitchell was reasonably well organized in his approach to the problem of "selling" air power to the American public and its armed forces. He had three basic points that had to be accepted by all in a position to direct American military policy; but once accepted, the Air Service would emerge as the primary branch of the American armed forces. Mitchell had to convince Americans that:

(1) air power could be decisive in warfare;

(2) a unified air force was the best way to obtain maximum results from air power; and

(3) the surest defense for America was international air supremacy.

As noted before, lack of genuine evidence was the greatest hurdle that Mitchell faced in his attempt to convince others that air power could be decisive in warfare. Afire with the faith of a true zealot, Mitchell argued in an *a priori* manner, basing his deductions on his own personal experience and convictions. He had conducted large-scale air operations on the western front, and had learned much from Major General Hugh Montague Trenchard, the first head of the British Air Ministry's Independent Air Force. At the war's close Trenchard was the commanding general of an Inter-Allied Independent Air Force, a paper organization that had the broad mission of "carrying war into Germany by attacking her industry, commerce, and population." Mitchell was sure that Trenchard's organization could have brought Germany to her knees, but unfortunately for Mitchell and his ideas, the Germans chose an armistice.

To buttress his arguments Mitchell referred constantly to the views of outstanding French and British military leaders. He emphasized the commonly accepted European conclusion that another war would begin suddenly with an aerial raid directed against civilian population centers. A favorite quote used was one attributed to General Duval of the French Air Force when he predicted that "the object of the (air) attack may no longer be the opposing army, as this may be neglected, and the desired results may be obtained by a campaign of terror carried on against the enemy country rather than against its armed forces. The decision will be reached in the air . . . ."

An American investigating board that examined air power use in England, France, and Italy after the war concurred in this conclusion. The Crowell Committee noted "that any future war will inevitably open with great aerial activity far in advance of contact either upon land or sea, and that victory cannot but incline to that belligerent able to achieve and later maintain its supremacy in the air." In his first book, *Our Air Force*, (1921), and in his last one, *Skyways*, (1930), Mitchell described the disruptive effect of air raids on production, and predicted that modern total wars with "nations in arms" would necessarily lead to bombardment of civil populations. He stated: "It is now realized that the hostile main army in the field is a false objective and the real objectives are the vital centers . . . . The result of warfare by air will be to bring about quick decisions. Superior air power will cause such havoc, or the threat of such havoc, in the opposing country that a long-drawn-out campaign will be impossible."

To prove further the decisiveness of air power, Mitchell turned his pen and eloquence against the Navy. For decades the United States Navy was considered the nation's "first line of defense"—Mitchell now sought to substitute the Army Air Service in this role. In a series of aerial bombing experiments that culminated in sinking the captured German vessels *Frankfort* and *Ostfriesland* during the summer of 1921, Mitchell proved his point that aircraft could sink armored naval vessels. What else was proved became the subject of a decade of controversy. Mitchell and his flyers claimed any naval vessel, under almost any condition, could be sunk were it to sail within the bombing radius of shore-

based squadrons. The Navy retorted that the experiments merely proved that ships at anchor, unmanned, and undefended could be sunk. The Mitchellites boasted that a Navy was of no real use to America since air power alone could defend it. The cost of one battleship, so the argument went, would provide 1,000 bombing planes for the nation's defenses. When naval leaders wondered how the country's foreign trade would be defended in wartime, Mitchell confidently wrote:

> England is entirely dependent for existence on her seaborne trade; Japan, also is dependent almost entirely on her seaborne trade. Whereas England and Japan would have to protect their commerce on the Seven Seas or starve, America could entirely dispense with her seagoing trade if she had to, and continue to exist and defend herself.

Between 1921 and 1930 Mitchell changed his approach in one significant way. He ceased to emphasize the offensive value of air power and stressed constantly its defensive qualities. His book *Winged Defense,* published in 1925, is written testimony to Mitchell's acceptance of American isolationism and semi-pacifism during the 1920's. Thus Mitchell's attacks against the Navy, and his attempt to arrogate to the Air Service the coastal defense role of the Navy, takes on broader significance. Aircraft that could search far to sea carrying heavy bomb loads would not be strikingly different from planes designed for strategic bombing missions against an enemy nation's "vital centers." By assuming the coastal defense mission the Army Air Service would raise no alarms by pacifist-minded civilians who might outherwise wonder why America had offensive heavy bombardment squadrons. At the same time the Air Service would not be denying its primary role as envisioned by the non-flying General Staff; for older Army officers still considered the Air Service to be an auxiliary of the infantry with a primary mission of ground support. In a way the Air Service acted realistically by stressing the defensive mission of air power. The Martin and Keystone heavy bombers lacked the military range needed for offense; therefore the strategic bombing role of the Army Air Corps after 1926 was held in abeyance, awaiting the development of a modern long-range bomber.

If air power could be decisive in warfare, argued General Mitchell, then it logically followed that America's armed forces needed to be reorganized to give aviation the primacy it deserved. Impatient with service elders who treated Air Service as an auxiliary to the ground forces, Mitchell and his followers called for a unification of all aviation, civil and military, under one executive department. They argued incessantly that aviation was unique. They stressed that air travel put them beyond the control of ground and sea forces, and that aviators could strike across the battle lines, reaching to the "vital centers" of the enemy. The Mitchellites considered the conservative Army and Navy leaders beyond education, and therefore took their demands to the American people. Magazines, newspapers, and even learned societies were flooded with Mitchell's theories. In Congress senators and representatives introduced bills calling for a unified air service, and key congressional committees held hearings and took voluminous testimony. The air power advocates called not only for a unified air service, but they wanted a Department of National Defense with sub-departments for the Army, Navy, and Air Force.

Despite this deluge of propaganda, the proponents of a unified air service did not have their way. The top elective leaders, Presidents Harding and Coolidge and their Secretaries of War and Navy, opposed such a move. Excepting Major General Mason M. Patrick, Chief of the Army Air Service, the Army and Navy leadership opposed losing its avia-

tion in the creation of an independent air service. Brigadier General Hugh Drum spoke for the Army's General Staff when he concluded:

> There is no war mission contemplated for the proposed independent Air Force by its advocates, which cannot and will not be executed by the Army Air Service when the military situation warrants it . . . . In the final analysis, national defense depends on the man in the front ranks of the ground battle. Do not deprive him of the assistance which aviation can render if joined to his battle team. A separate Air Service cannot win a war . . . .

The drive for a unified air service had one notable beneficent result, it saved the aviation industry from almost certain ruin. In stressing the great value of a single air service, backed by a national air policy, Mitchell did call attention to the wretched condition of the aircraft manufacturers. The aviators pressed the point that the industry was a vital component of a nation's air power, and to have a sick industry decidedly weakened American defenses. Congressional leaders understood business better than military matters and saw the wisdom of long-term purchasing authorizations and appropriations.

The Navy and Admiral Moffett did not lie supinely while the Army's *enfant terrible* filled the air with his theories of air power. The Admiral called to the Bureau of Aeronautics several officers wise in the ways of publicity and possessing good congressional connections. The most important was a young retired lieutenant, Richard E. Byrd, later famous for his polar flights. Unlike Mitchell in his relations with his superiors, Moffett had the confidence of the Navy. After all, the General was attacking the whole naval establishment and not its aviation alone. Abetting the Navy was the fact that its yards and bases dotted the American littoral from Maine to Puget Sound. Congressmen, with their local economies in mind, had more at stake than the long tradition of a Navy as the first line of defense. Behind these general advantages, Moffett "sold" sea power more effectively than his critics promoted air power.

Steeped in the teachings of Mahan, and having been a battleship officer in his career, Admiral Moffett sincerely believed in the decisiveness of sea power. He knew that a nation could be starved into submission once it lost control of the sea. He agreed with Mahan that the defeat or containment of a nation's battle fleet would permit the setting of blockades. Thinking in terms of Japan, and occasionally of Great Britain, the Admiral and the Navy's General Board knew that American command of the sea would mean sure defeat for both powers. The vital centers of Japan or England could be paralyzed by denying raw materials to their factories and food to their urban populations. Air power might be quicker, but sea power could achieve the same ends without outraging the sensitivities of neutrals through bombardment of civilians or the use of poison gas. The battle line of the United States Navy was an actuality, long-range bombers capable of crossing the Atlantic were a prophecy. President Coolidge's Aircraft Board, attempting to resolve much of this inter-service conflict, concluded that aviation technology was too primitive in late 1925 to permit an aerial attack against the United States. The Board decided that primary reliance upon air power for defense was premature. Airplanes would have to come on carriers and the Navy was designed to prevent the arrival of an enemy fleet.

Paralleling Army thinking, Moffett and his naval aviators considered aviation an auxiliary of the fleet. The Admiral liked to picture airplanes as long guns for the battle line, and pleased many a "sea dog" when he described his planes going to sea "on the backs of the fleet." With his wealth of shipboard experience and fleet training, Moffett spoke candidly on the question of whether the Navy's

role was strictly defensive. To a congressional committee investigating the use of air power, the Admiral commented:

> You do not win a war by remaining on the defensive. You have to go after the other fellow and take the offensive. If you stay here and surround the country with a wall of aircraft or soldiers, you will undoubtedly be licked . . . . The thing to do is to put aviation on something and carry it to the enemy, . . . on board a ship, in other words . . . . The war will be settled by control of communications, and you cannot control communications by staying in the continental United States.

Though considered a little too far advanced in his thinking by the General Board and senior naval officers, Moffett was far behind a trio of retired admirals who fought mightily for a more rapid modernization of the Navy. Rear Admirals William S. Sims, William F. Fullam, and Bradley A. Fiske pressed the Navy and at times provided arguments for Mitchell and his clique. Sims predicted that "carriers would become the capital ships of the future," and with this Fullam and Moffett were in agreement. In attacking naval conservatism as the reason for outdated thinking, Sims, Fullam, and Fiske centered their fire on the battleships. They argued heatedly before congressional committees and in the press that the submarine and airplane had doomed the battleship. Mitchell seized these arguments in his drive to establish the primacy of air power; but, the three admirals still firmly believed in the value of a navy and possession of "command of the sea." They merely wanted this command to be obtained by weapons and vessels more modern than the battleship.

On the issue of a single unified air force the three admirals and Moffett stood firmly with the Navy—all were against it. Most were sure it would lead to a single Department of Defense and unwise trimming of the Navy's budgets once unification was accomplished. Almost all naval officers sincerely believed that naval aviators had to be trained seamen and graduates of the Naval Academy, because an aviator from a unified air force simply would not be efficient at sea. From the testimony before congressional committees it appears that the Navy was afraid to concede anything to the Mitchellites from fear that this would be the beginning of the end for the Navy as well as naval aviation. In the end the Navy found that the best answer to the air power enthusiasts was to incorporate aviation into the fleet more completely, and in this work Admiral Moffett led the way.

In 1926 the troubled seas on interservice rivalry were calmed by two events: Mitchell resigned from the Army after being placed on inactive status; and the Congress passed Army and Navy acts providing for the expansion of aviation in both services. Questions concerning a unified air service or clear responsibiltiy for coastal defense were left unanswered.

Unhampered by the predatory attacks of the Army Air Corps (the Air Service became an Air Corps in 1926), the Navy turned its attention to questions concerning the use of aircraft carriers. In late 1927 the new 33,000 ton carriers *Lexington* and *Saratoga* joined the fleet, adding enormously to its strength. Carrying four squadrons (over 60 planes), able to steam at speeds in excess of 30 knots, and capable of cruising 10,000 miles, the new capital ships called for revisions in naval thinking about sea warfare. Beginning with war games in late 1928, fleet commanders saw that high speed task groups could be formed to operate independently of the battle line. In company with fast cruisers and destroyers, the carriers were able to launch surprise attacks against the Panama Canal Zone and the Pearl Harbor naval base. Because of their high speeds, the carrier attack groups could stand

outside the range of shore-based patrols in daytime and steam to a safe aircraft launching distance under cover of darkness. The success of such operations soon turned the Navy's thinking toward acquiring more carriers, preferably ones around 14,000 tons, in order better to utilize carrier category tonnage allowed under the Washington (1922) and London (1930) naval treaties.

By the early 1930's naval leaders recognized that battleships could no longer control the sea alone. Unable to operate within the range of shore-based bombers, battleships now required the presence of carrier aviation when in enemy waters. In turn carriers became the primary targets of carrier or shore-based aviation, for once deprived of its aerial cover the battle line could be hammered to destruction. Under the conservative eye of the General Board, Admiral Moffett testified in 1928 that "aircraft carriers will not drive our battleships from the sea, but they will be necessary if our battleships are to remain at sea when war comes." By 1932 the President of the Naval War College showed the new drift in naval thinking when he noted publicly:

> One of the outstanding lessons of the overseas problems played each year is that to advance into a hostile zone, the Fleet must carry with it an air force that will assure, beyond doubt, command of the air. This means not only superiority to enemy fleet aircraft, but also to his fleet and shore-based aircraft combined.

Anticipating by 25 years the strategic role of the attack carrier, Moffett suggested in 1930 that carrier aircraft could strike enemy cities and bases long before a sea-borne invasion could be undertaken. Worried about defending the Philippines and the Open Door Policy in China, naval planners saw the carrier attack force as a weapon capable of hitting the enemy (Japan) were a war to break out. Yet, "to give the Devil his due," it was the irrepressible Mitchell who wrote in January of 1929:

> The Navy still tries to hold to the principle that the surface fleet controls the sea. It attempts to keep aviation around the fleet so as to defend these vessels against hostile air attack, instead of using aviation *to strike directly at the heart of the enemy* . . . . What is needed is direct attacks against the enemy's own country, not some unimportant operation in an undecisive area such as the surface of the sea.

By the mid-1930's the Army and Navy had developed their aviation arms into offensive weapons. Following the dicta of Italian General Giulio Douhet and "Billy" Mitchell, with their emphasis upon offensive bombing strikes, the Army Air Corps needed only a plane capable of delivering several tons of bombs over long distances at high speeds. The Army flyers were indoctrinated to bombard the vital centers of the enemy, and to do so in daytime with great precision. With Douhet the Army bombardment specialists underestimated the potentialities of fighter defense, and thought in terms of unescorted bombers protecting themselves by overlapping areas of fire. Some grim lessons were to be learned a decade later when assaulting *Festung Europa.*

Under the shrewd guidance of Admiral Moffett the Navy slowly learned how to use its aircraft carriers. From a surface auxiliary designed to protect the fleet from airborne marauders, carriers gradually evolved into the striking weapon of the high-speed task force. As later demonstrated over Tokyo and Midway, carrier air power could destroy a hostile fleet, or it could range far inland for strategic strikes against the enemy's industrial complex. In time the air power theories of Mitchell and Moffett were gradually united in the crucible of World War II; and now today, the offensive roles of the United States Air Force and American naval aviation are in many ways indistinguishable.

*Operations at Cheyenne, Wyoming control stop, October 1919. Entry number ten, "JUNK," was that of Lt. Gish, one of the heroes of the transcontinental test.*

# AVIATION ON TRIAL
## *Success and Catastrophe*

TRANSCONTINENTAL RELIABILITY TEST—PART II

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America's men of the air had glimpsed during World War I a vision of the future of aviation. The great transcontinental reliability test of October 1919 had been conceived to bring this vision closer to reality. The early progress of the transcontinental pageant lent encouragement to these hopes. Quickly, however, unhappy circumstances began to intervene.

From coast to coast during October, three weeks of violent weather swept across the United States. Forty years later, total rainfall for the month has yet to be equalled at many points along the transcontinental route. The reliability test became a story of cloud, rain, mud and snow. The challenge to pilots of time and distance became submerged by the more imposing challenge of some of the worst flying conditions imaginable.

On 9 October, the second day of the transcontinental test, heavy rains and gales hammered the eastern half of the

nation, turning landing fields into mud and hampering pilots with slashing gusts and low visibility. East of Buffalo the foul weather led to four accidents resulting from forced landings, major damage eliminating each aircraft from the contest. Of the eighteen ships at Buffalo, nine set out for Cleveland about 0800. Caught in the driving rainstorm, only two of the nine reached Cleveland that morning. Six ships executed forced landings in northwest Pennsylvania, driven down by the low visibility, their wooden propeller edges chewed away by the rain and hail.[1] One pilot, reaching Cleveland after two forced landings, remarked:

> The nastiest day I've seen for flying. The rain and hail were destructive to a ship, there was unusually low visibility and the wind was strong and full of pockets. Handling a ship was hard work, and I'm glad to be here—and here I'll stay until it is smoother for flying.[2]

The ninth plane from Buffalo, a DH-4 flown by Lieutenant A. M. Roberts, encountered motor trouble over Lake Erie. Roberts guided the craft to a successful water landing; both occupants of the ship were rescued by a passing freighter. Late in the day, one more DeHavilland pilot set out from Buffalo, despite appeals from the other airmen not to risk the storm. The ship soon returned to the Buffalo field, the violent gale practically preventing directional control. The premature halting of flying activities at Buffalo during good weather the first afternoon had proven especially unfortunate. Crews of the thirteen craft remaining at Buffalo the second night eyed forecasts for continued storms the next day.[3]

The three DeHavillands which had reached Bryan, Ohio the first night, increased their advantage. Storms between Bryan and Chicago were extremely vicious, one pilot describing the leg as the roughest journey he had ever experienced. West of Chicago the weather improved, enabling two of the ships to reach Des Moines at dusk. The poorly drained Ashburn Field at Chicago was a sea of mud throughout the day. Two of the three leading ships nosed over taxiing in the muck, smashing propellers. Four planes arrived at Chicago in the late afternoon; all four pilots experienced difficulty locating the field. Personnel at Ashburn set aflame a haystack and a huge pool of gasoline as a beacon signal. Despite this aid, one pilot landed on a ball diamond at Washington Park, quickly telephoning the *Tribune* to ask where he was supposed to land.[4]

The eyes of the nation, however, focused on DH-4 number 31, flown by Lieutenant B. W. Maynard. Maynard departed from Chicago soon after dawn, thereby gaining three hours on his closest rivals who were delayed back at Bryan until mid-morning. Flying as usual at about 2000 feet, Maynard encountered very rough air and became airsick for the first time in his life. Late in the afternoon at North Platte, Nebraska, Maynard clasped hands with Captain Lowell Smith, the leading eastbound contestant. The symbolical implications of the event were not overlooked by the American press. By nightfall Maynard reached Cheyenne, at the western edge of the Great Plains, far ahead of his closest westbound rivals at Des Moines.[5]

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[1]John Donaldson, "Twice Across the Continent in a Single-seater," *U.S. Air Service*, November 1919, 25; *Cleveland Plain Dealer*, 10 October 1919, 1; *New York Times*, 10 October 1919, 2.

[2]Interview of John Roullot, *Cleveland Plain Dealer*, 10 October 1919, 4.

[3]*Buffalo Express*, 10 October 1919, 1-2; *Cleveland Plain Dealer*, 10 October 1919, 1.

[4]Captain H. C. Drayton to Director of Air Service (DAS), 21 November 1919, Army Air Force Files, Records Group 18, National Archives; Donaldson, "Twice Across the Continent," *U.S. Air Service*, November 1919, 25; *Chicago Daily Tribune*, 10 October 1919, 1-2.

[5]Belvin Maynard, "Most Dramatic Incident in My Flight," *U.S. Air Service*, November 1919, 26; *Omaha Bee*, 10 October 1919, 1-2; *Wyoming State Tribune*, 10 October 1919, 1.

*"Switches on," for Lt. Belvin Maynard, Sgt. William Kline, and police dog Trixie (in rear cockpit), midway on Maynard's record-smashing transcontinental journey.*

Belvin Womble Maynard, at the outbreak of the war, had been a student at the Baptist Theological Seminary at Wake Forest, North Carolina. He held a pastoral charge nearby while studying for the ministry. Entering the Air Service in 1917, he received his flying instruction from French flyers at Tours, France. Maynard spent the last months of the war testing American-built planes assembled at Romarantin and delivering them to combat units. After the Armistice, Maynard performed stunting exhibitions over the camp each Sunday morning, a curious Sabbath observance. He was known to troops at the field as a "nervy and skillful flyer." He first gained fame by performing 318 consecutive loops, breaking an existing record of dubious significance.

Maynard was a slim youth of medium height, weighing about 145 pounds. His rimless glasses, which he carefully wiped on climbing from the cockpit after each flight, contributed to his studious and mild appearance. As a boy Maynard had taken upon himself responsibility for repairing all vehicles and machinery about his father's farm. Later he had worked as assistant foreman in an arms factory. Fellow aviators acknowledged Maynard's unusual ability as an airplane mechanic. Maynard's mechanical inclination was typical of most successful aviators of his day. Carl Spaatz has termed Maynard, "one of America's best flyers."[6]

Several hundred chilled spectators cheered the group of eastbound flyers preparing for departures the second morning from Salt Lake. Eight ships set forth in the face of treacherous clouds and reports of sub-zero temperatures in the mountains ahead. Some of the pilots pointed their noses directly toward destination at Rawlings; others headed to intercept the Union Pacific railroad.

A series of heavy snowstorms met the flyers over Wyoming. The bitter cold, the driving winds, and the wall of white

[6]Interview with Carl Spaatz, 3 April 1959; testimony of Maynard, 19 November 1919, U.S. Congress, House, Subcommittee No. 1 (Aviation) of the Select Committee on Expenditures in the War Department, *War Expenditures, Hearings*, 66 Cong., 1 Sess., 1919, 3657-3659; *Aircraft Journal*, IV, 3 May 1919, 10.

flakes created virtually impossible flying conditions. Emil Kiel, flying in open cockpit over the mountains at 12,000 feet, emerged from one cloud with his body covered with ice. Major Spaatz, nearly blinded by the whipping snow near Cheyenne, maintained his course only by flying a few feet above the railway, even so sometimes frighteningly losing contact with the ground. Edwin Wales and William Goldsborough, flying in a DH-4 between Rawlings and Cheyenne, were forced to decrease altitude because of clouds. Entering a severe snowstorm, the men lost sight of the terrain. Suddenly a mountain-side appeared dead ahead, and, in desperately turning the ship, Wales lost control. The craft plunged into the ravine. Wales died in the wreckage; Goldsborough, badly injured, found his way through the storm to a ranch nearby. The fatality toll now stood at six.[7]

The American press found the transcontinental pageant an extremely newsworthy event. Each major daily featured prominently reports of each day's flying. Newspapers printed in the control stop cities displayed full pages of interviews with the participants and photograps of the activities. Some editors attacked the fatalities:

> This peacetime test of machines is becoming almost as deadly as the air-campaigning over the German lines. Is the game worth such sacrifices? Could not the qualities of airplanes be adequately tested without contests that involve the lives of so many brave men?[8]

For better or worse, the transcontinental reliability test was placing aviation squarely before the public.

Miserable weather dominated the third day, 10 October. In the West, bitter cold treated the flyers cruelly as the snows of the previous day subsided. East of Chicago, contestants made little progress as continuing rains turned landing fields into seas of mud. By the end of the day only nine of the Mineola starters had yet reached Chicago. Ashburn Field was a veritable lake, and the morning take-offs had been accomplished with great difficulty. At mid-day the Chicago control was shifted to Grant Park, in the heart of downtown. The Grant Park field had been used by the mail service, and proved entirely suitable during the rest of the reliability test. Pilots were enthusiastic at finding an eminently satisfactory field only a few yards from the skyscrapers of the city.[9]

Worth C. McClure, observer in Major Sneed's DH-4, was killed that afternoon during a landing at the Buffalo control stop. Sneed, low on gasoline, had hurried the landing attempt. The plane made heavy initial contact with the ground and bounded high in the air. Out of control, the craft smashed to earth nose first hurling McClure violently away. McClure had unfastened his safety belt, preparing to move his weight aft along the fuselage to assist in landing.[10] The victim was placed in an ambulance which promptly became mired in the muck. McClure died with a broken neck before reaching the hospital.[11]

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[7]*Deseret Evening News,* 9 October 1919, 1; *Wyoming State Tribune,* 10 October 1919, 1, 11 October 1919, 1; T.S. Voss to DAS Officer, West, 2 December 1919, AAF Files, RG 18, NA; DAS, "Report on First Transcontinental Reliability and Endurance Test," *Air Service Information Circular,* 1, 5 February 1920, 20-21. Hereafter cited as "Report," *ASIC.*

[8]Editorial, *Buffalo Express,* 11 October 1919, 6.

[9]Message TT 356, DAS to DAS Officer, Central, 10 October 1919; reports of Lieutenants Norris and Manzelman, no dates, AAF Files, RG 18, NA; *Chicago Daily Tribune,* 11 October 1919, 2.

[10]When landing on soft ground, the rear-seat occupant sometimes left his seat, moving to a position astraddle the aft fuselage, thus reducing the likelihood of nosing over after landing. On short fields, the observer could thus also assist in braking the landing roll. The practice was not uncommon, and seldom failed to elicit comment among spectators during the reliability test.

[11]Telegram, Control Stop Commander, Buffalo to DAS, 10 October 1919, AAF Files, RG 18, NA; *Buffalo Express,* 11 October 1919, 1; "Report," *ASIC,* 20-21.

Belvin Maynard met delay departing from Cheyenne. Early in the morning water in the overflow pipe of his radiator had frozen, seriously damaging the radiator. The shattered parts were rushed to the city for repair. Five hours later Maynard was again in the air. Maynard reached the great salt field at Salduro at twilight that evening, only 518 miles from San Francisco. Captain H. C. Drayton, at Rawlings, rested only two stops behind. Ahead in eastern Nevada raged a rugged snowstorm, which had smashed two planes in forced landings during the day. Meanwhile at Bryan, Ohio, within the rainstorm zone, stood the three leading eastbound pilots: Spaatz, Kiel, and Smith. Only 560 miles from destination, the three hoped to reach Mineola the next day.

Maynard's arrival at San Francisco highlighted the next day, 11 October. The flight from Salduro was accomplished routinely, and except for clouds shrouding the Presidio field, ideal flying conditions prevailed through the day for the "Flying Parson." Maynard landed at 1320, first alarming the sizable crowd by circling the field in a steep bank to kill off excess speed and altitude. Such maneuvers, pressing the fringe of aircraft structural strength, could be executed with safety only by the most skilled pilots. On the ground, the heroic DeHavilland was surrounded by the eager crowd, seeking to greet Maynard and Kline. Colonel Arnold broke through, leading Maynard toward General Menoher, who had arrived at San Francisco that morning. Sergeant Kline told of the strain:

> The roar of the motor is awful, especially when you hear it ten or twelve hours a day. I would wake up in the middle of the night and start to fix something before fully awakening. All night long I would be traveling in my sleep.[12]

Maynard's achievement well merited plaudits. In spite of the restraining rules of the contest, his crossing shattered existing transcontinental marks for both flying time and total elapsed time. Previous flights across the nation had been over less exacting southern routes. Maynard had outdistanced his rivals partly by virtue of breaking clear of the eastern states the first day, before the rainstorms struck. Maynard was especially fortunate in avoiding the blizzards over the Rockies and across Nevada. Yet Maynard's victory, on the heels of his New York-Toronto triumph, was not simply luck. Determination and resourcefulness had won the lead the first night. Superior flying skill, and a special aptitude for cross-country navigation, combined with an ability to handle perfectly the Liberty engine, stood behind Maynard's confident daring.

Meanwhile, between Chicago and New York, the downpour of rain and the low visibility of the past two days continued. Westbound flyers attempted little progress against the prohibitive conditions. Undaunted, the three Mineola-bound leaders set out in early morning from Bryan, spurred by the hope of reaching their goal ahead of Maynard. Lowell Smith, first off, was unable to locate the Cleveland field amid heavy rain. Landing south of the city to get directions, Smith's ship met a hidden ditch, smashing propeller and landing gear. Smith repaired the damage with the aid of mechanics from the Martin plant. Stuffing his leaking radiator with cornmeal, Smith resumed his journey, having fallen five hours behind his rivals. Spaatz and Kiel, passing Smith, vied in almost constant rain for the lead. At Buffalo, Lieutenant Pitts refused to permit the rivals to proceed, but after earnest protests by the pilots and special instructions from Washington, Spaatz and Kiel departed in the early afternoon for Rochester. At the instant Maynard landed at the Presidio, Spaatz and Kiel were on the ground at Binghamton, one control from destination. A few minutes past 1830, with darkness fast closing, first Kiel and then Spaatz touched their wheels to the turf

[12]*New York Times*, 12 October 1919, 3.

at Roosevelt Field. Spaatz had previously landed through a misunderstanding at nearby Hazelhurst Field, losing the five-minute advantage he held at the time over Kiel.[13]

The accomplishments of Spaatz and Kiel were comparable to those of Maynard. The two had conquered fog about the Presidio, blizzards in the Rockies, bitter cold across the Plains, and finally incessant rain eastward from Chicago. That night at the American Flying Club, Kiel spoke of the horrible conditions he had met and indicated that he had no wish to make the return journey.[14]

The transcontinental reliability test had captured America's imagination. Newspaper artists found the event a subject for clever cartoons. The staid *New York Times* headlined Maynard's arrival at San Francisco across page one. Editors hailed the Air Service contribution to civil aviation and the sacrifices of the dauntless flyers. One spokesman suggested naming places for the dead airmen. One report told of large sums changing hands, as people throughout the nation backed their favorites. The public response to the transcontinental test brought surprise to General Menoher.[15]

The new week brought little relief from the brutally unkind weather. Clearing skies east of the Mississippi mocked the flyers, land-bound by the rules of the contest on Sunday, 12 October. The fair conditions continued the next day enabling Lowell Smith, at Rodchester, to easily reach Roosevelt Field. Later in the day H. E. Queen and R. S. Worthington, in DH-4 and SE-5 respectively, arrived at Mineola. Worthington thereby became the first man to cross the continent in a single-seat craft. But from Iowa to Nevada, lashing rains and menacing low clouds turned flying into a nightmare. As the group of lagging westbound flyers entered this storm zone, a succession of accidents and hazardous forced landings took place.

Captain Felix Steinle landed his DH-4 in an Iowa cornfield, lost in the low clouds. J. T. Johnson, unable to locate the Omaha control in poor visibility, damaged the undercarriage of his SE-5 while landing at the edge of the city. Bruised and cut about the face, Johnson obtained directions and flew his plane to the control stop for repairs. The DH-4 of Marine Lieutenant G. B. Newman nosed over in soft mud during a forced landing in Utah. A motor truck hauled the ship to the Salduro control. The DH-4 of Howard Morris was wrecked and both occupants slightly injured, crashing out of a turn while attempting a forced landing, lost in a violent storm at Oconto, Nebraska.

Lieutenant John B. Wright, following the Union Pacific railway across Nebraska through the storm, mistakenly followed the wrong branch out of Julesburg, taking the southern branch to Denver rather than the main line. In thick darkness, Wright guided his landing by a farmer's flashlight near Sterling, Colorado. Both occupants narrowly escaped death as the DeHavilland came to earth brushing telephone poles and grazing a fence. The plane finally rested between the farmer's automobile and barn, miraculously only slightly damaged from the blind landing.

The new Martin Bomber, pride of the American Air Service, flown by Captain Roy Francis, had performed creditably if unspectacularly through the early phases of the transcontinental test. Held back by the rains and particularly by the muddy fields, Francis had accomplished one or two jumps each day. Arriving near Omaha during the storms, the crew was unable to locate the city. Francis attempted to put the ship down in a field thirty miles west of the city.

[13] *Ibid.*, 12 October 1919, 1, 3; *Cleveland Plain Dealer*, 12 October 1919, 3, 12; *U.S. Air Service*, November 1919, 9.

[14] *New York Times*, 12 October 1919, 3.

[15] *Des Moines Register*, 11 October 1919, 1; *Chicago Daily Tribune*, 11 October 1919, 1; Ruth Mitchell, *My Brother Bill* (New York, 1953), 213; Menoher, "Preface," in "Report," *ASIC*, 5.

*Belvin Maynard, winner of the transcontinental reliability test, meeting Lt. General Hunter Liggett and Air Service Chief Maj. General Charles T. Menoher at San Francisco.*

The Martin smashed flush into telephone wires, falling nearly a complete wreck. The crew amazingly escaped uninjured.

Two names were added to the death toll on 15 October. The DH-4 flown by Lieutenant French Kirby crashed to destruction near the Wyoming-Utah border. Eyewitnesses indicated that total engine failure had occurred. The ship stalled during the dead-stick landing approach. Kirby and Stanley Miller became the eighth and ninth victims of the murderous transcontinental test. All nine fatalities had taken place in DH-4 aircraft.

The Kirby accident released a flood of criticism against Air Service policy-makers. The *Chicago Tribune* termed the transcontinental operation, "rank stupidity." Charles J. Glidden, noted sportsman and private aeronaut, wired Secretary Baker and General Menoher, calling for cancellation of return flights. A San Francisco editor questioned whether the government was proving the proper agency to develop aviation. Most devastating of all was the barrage of Fiorello LaGuardia, who charged that the race was "a pathetic display of selfish interests," calling for an immediate halt to the transcontinental flights.[16]

Air Service spokesmen defensively explained the accidents. General Menoher in San Francisco had pointed to the foul weather, pilots' errors, and violations of contest rules. He observed that accidents seemed to go in waves, a curious theory held by many flyers today. Colonel Hartney, flying across the coun-

[16]Editorial, *Chicago Daily Tribune,* 18 October 1919, 8; Glidden to DAS, 10 October 1919; Glidden to Secretary of War, 11 October 1919, AAF Files, RG 18, NA; editorial, *San Francisco Chronicle,* 22 October 1919, 13; *New York Evening Post,* 17 October 1919, 1.

try, blamed the accidents on failures to follow the spirit of the rules he had written. Mitchell, and later Menoher, stressed the location of the DH-4 fuel tank, in causing the fatalities.[17]

A few critics touched upon a vulnerable point, one not easily answerable by Air Service defenders. The Associated Engineers of Spokane, protesting against the race, pointed to the general public impression created by the fatalities. The engineers resolved:

> that in the best interests of aviation of the future we urge upon the proper authorities at Washington that their efforts be more and more directed toward demonstrating that travel by air is safe and not hazardous.[18]

The *Buffalo Express* wrote:

> The contest . . . has done little to strengthen the public's faith in the safety of the heavier-than-air machines, the goal which aviation authorities are ever striving to reach.[19]

These observations touched upon an aspect which, if valid could symbolize a serious failure of the transcontinental test.

Flying operations continued at an intense pace through the second week. Planes spattered across the raindrenched East, and battled snowstorms in the Rockies, as foul weather continued to plague the operation. Maynard, Spaatz, and Smith set out on their return flights at mid-week. By Sunday, 19 October, twenty-nine entrants had completed one-way transcontinental crossings. Those arriving brought stories of incredible difficulties.

Harold Hartney landed at the Presidio grounds shortly after noon on Friday, the only Fokker pilot to complete the one-way trip. Hartney had been compelled to perform five forced landings en route, principally because of shortage of fuel. Hartney spoke of the assistance of helpful farmers, hauling gasoline to him without cost. Heavy rains in the East had badly chewed the Fokker's propeller. Hartney flew most of the course with the damaged propeller, until surprisingly locating a replacement at Reno. Hartney's transcontinental flight, with the many successful forced landings and subsequent take-offs, often using gasoline of questionable quality, represented an achievement of distinct merit.[20]

Donald B. Gish reached San Francisco Saturday, climaxing a remarkable journey. Gish made five forced landings en route to California, two of them with his engine dead. On one occasion Gish lost a wheel on take-off, but flew on to the next control, negotiating a successful landing at Salduro. Gish had painted the word JUNK in huge letters on the side of the DH-4 fuselage, advertising to all his opinion of the wartime airplanes now equipping the peacetime Air Service. Gish's machine was smashed at the Presidio, blowing a tire in landing. The indomitable Gish set about preparing for the return flight with a DH-4 belonging to another contestant. This was Gish's third machine.[21]

The control stop at Green River, Wyoming, had been skipped by many of the contestants. Those pilots landing at the field criticized its small size, the poor drainage, and the menacing cliffs nearby. Several accidents attributable to the unsatisfactory field occurred. The disappointed citizens of the community made every effort to compensate for

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[17]*San Francisco Chronicle*, 12 October 1919, 4; *Deseret Evening News*, 16 October 1919, sec. 2, 1; *Automotive Industries*, XLI, 30 October 1919, 883.

[18]Press release by Spokane News Bureau, 23 October 1919, AAF Files, RG 18, NA; *San Francisco Chronicle*, 19 October 1919, 4.

[19]*Buffalo Express*, 17 October 1919, 16.

[20]DAS to Control Stop Commander, Omaha, 10 October 1919, AAF Files, RG 18, NA; report of Hartney, in *The Sportsman Pilot*, 15 December 1940, 18-19; *San Francisco Chronicle*, 18 October 1919, 1.

[21]*Ibid.*, 19 October 1919, 4; DAS to Commander, Hazelhurst, 11 November 1919, AAF Files, RG 18, NA. After his first day's accident in New York State, Gish had returned to Mineola for a second start.

this situation. Men and women alike turned out in a body to clear sagebrush from adjacent areas, enlarging the landing field. The Green River Boy Scouts performed the wearying task of carrying five-gallon cans of gasoline from the storage barrels to the planes for refueling. Flyers remaining overnight at Green River were given food and sleeping accommodations at private homes.[22]

The climax of the transcontinental pageant took place on Saturday, 18 October, when Belvin Maynard swept in at Roosevelt, completing his double continental crossing. An excited crowd surged past police lines, surrounding the DeHavilland while the engine still roared. Witnesses noticed that Maynard seemed weary and showed the strain of his indomitable effort. The progress of Maynard and Kline back across the continent had attracted nationwide attention, and the two had met enthusiastic receptions after each landing. Their journey had been spiced by hair-raising experiences in blizzards across Wyoming and by a perfectly executed dead-stick forced landing after engine failure near Omaha. In the Nebraska cornfield, the two had labored through the night, changing the heavy Liberty engine with one salvaged from the wreck of Roy Francis' unlucky Martin Bomber. The task, which normally required three full days with full hangar facilities, was completed overnight with the aid of Francis and a handful of mechanics and helpful farmers, using the limb of a convenient tree for hoisting.[23]

Billy Mitchell, soon after Maynard landed at Roosevelt, issued an official statement, praising Maynard's individual performance, paying tribute to the ability and determination which stood behind his success. Mitchell interpreted the meaning of the transcontinental test, insisting that the race plainly signalled the end of America's isolation, showing that the capabilities of air forces meant preemption of the traditional role of seapower. Mitchell called for a united Air Service, declaring:

> There can no longer be any doubt that complete control of the air by any nation means military control of the world.[24]

The sacrifices and Herculean efforts of the transcontinental aviators were thus translated by Mitchell into the fight for air appropriations and the independent Air Force.

From this point, flying operations diminished as one by one contestants reached their terminals. Public interest began to wane. Return trip starts were halted. Captain John Donaldson piloted his SE-5 into Roosevelt 20 October, completing the double crossing with the original Hispano-Suiza engine still firing. Only four other pilots were to complete the round-trip without changing motors. Lowell Smith roared into the Presidio early 21 October, to a reception by the citizens of San Francisco matching that accorded Maynard in New York. Smith's plane had been destroyed by a fire on the ground at Buffalo, and Smith completed the journey in the plane originally used by Spaatz, who had withdrawn at Buffalo in deference to Smith's persuasiveness.[25] Two other DH-4 pilots — Manzelman and Pearson—completed the round-trip at Mineola 22 October.

Ten days of atrocious weather set in across the continent beginning 22

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[22]Reports of Lieutenants Torney, Manzelman, and Wright, no dates; memorandum by Green River Control Stop Commander, no date, AAF Files, RG 18, NA; report of Hartney, in *The Sportsman Pilot*, 15 December 1940, 18-19; "Report," *ASIC*, 8.

[23]DAS to Control Stop Commander, Omaha, 16 October 1919, 17 October 1919, AAF Files, RG 18, NA; *Omaha Bee*, 17 October 1919, 1.

[24]*San Francisco Chronicle*, 19 October 1919, 4.

[25]*Ibid.*, 19 October 1919, 4, 22 October 1919, 13; *Buffalo Express*, 16 October 1919, 4, 17 October 1919, 1; message TT 383, DAS to Control Stop Commander, Hazlehurst, 16 October 1919; message TT 394, DAS to Control Stop Commander, Buffalo, 17 October 1919, AAF Files, RG 18, NA.

October, prolonging conclusion of the contest. Those pilots remaining on the course splashed along, sometimes spending as much as a week at a single control. The test officially ended at sundown 31 October. Snows had virtually closed down the fields in Wyoming and Utah. Personnel at these controls had already prepared the surplus supplies and the smashed aircraft for shipment to depots. The air highway across the West was quickly dismantled, hopefully to be resurrected in the spring. Three of the five pilots still on the course completed the double transcontinental crossing the final day, bringing the total to eight. Two others, ruled officially out of the contest, continued across the eastern states, successfully reaching Mineola after the deadline had expired. Thirty-three entrants had completed one-way transcontinental flights.

The great transcontinental reliability test had involved a mighty expenditure of individual efforts. The cost in life had been tragic; the series of smashed aircraft across the country bore mute testimony to the harshness of the exercise. But the achievements growing from the efforts of Maynard, Hartney, Gish, and many others, had added a brilliant chapter to America's traditions of the air.

The operation led to certain distinct, though limited contributions to the science of aviation and to technical development in the Air Service. The intensive trials of the test pointed toward guidelines for future engine development, particularly regarding cooling and ignition systems. The test posited the life of the Liberty engine, if handled carefully, at about one hundred flying hours. Glowing pilot descriptions of the performances of the DH-4B Bluebird—a modification of the DH-4 placing the gas tank forward of the pilot—led to contracts for modification of 1000 DH craft into Bluebirds. The remarkable success of the single-seat SE-5 indicated that all design flaws had been satisfactorily worked out and showed that the Hispano-Suiza motor was one of unusual reliability. Three of the five SE-5 starters completed the one-way journey, and the two attempting return flights successfully reached their goals. Yet the 160 horsepower Mercedes engine, doubling the continent in Hartney's Fokker, had unquestionably outperformed all other engines, suggesting that the mass-produced American Liberties and Hispano-Suizas might not be the world's finest.[26]

The terrible weather conditions served to underline one of the greatest problems facing aeronautics—that of safe flying and navigation during bad weather. The race pointed out the need for a highly developed system of weather reporting, supplemented by an extensive communications apparatus, and for educating pilots in the meaning and use of meteorological information. Certain cockpit airspeed indicators froze up during flights, an intolerable deficiency. Instruments designed to show aircraft attitude proved deficient. The searchlights employed at the eastern fields earned unqualified praise for their role in guiding pilots to the proper landing place; testing of searchlights for use on aviation fields began at Carlstrom Field, Florida.[27]

The number of accidents and fatalities clearly exceeded the normal toll for flying under other circumstances. During the full year of 1919, seventy-four Air Service fatalities resulted from cross-country missions, or one for every 274 flying hours.[28] The rate during the transcontinental test was still higher—one death per 180 hours flown. The excessive

[26] *Aircraft Journal*, V, 25 October 1919, 9; "Report," *ASIC*, 16-18, 31, 34-35; memorandum for DAS from Mitchell, 24 October 1919, printed in House, *War Expenditures, Hearings*, 1919, 2636.

[27] Lieutenant L. Webster to DAS, 3 December 1919; Lieutenant Colonel Jacob Fickel to DAS, 31 October 1919; memorandum for Chief, Training and Operations Group from Major M. Kirby, 24 January 1920; Memorandum for Chief of Training from Lt. P. Yost, Observer Branch, 5 November 1919, AAF Files, RG 18, NA; "Report," *ASIC*, 9, 24-25, 31-34, 18-19.

[28] *New York Times*, 22 January 1920, 21.

number of accidents, both fatal and nonfatal, essentially stemmed from the extraordinary features of the operation: the foul weather which caused and complicated scores of forced landings, and the unfamiliar and inhospitable route, which presented special problems in landing at both prepared and unprepared sites.

Some observers pointed toward fatigue of the pilots and the tendency to take unwise chances because of the competitive nature of the race and the attending publicity. The Air Service failed to silence grossly inflated reports of monetary prizes awaiting the winners. The decision not to allow contestants to receive prizes was not confirmed until long after the test.[29]

Both Maynard and Mitchell noted the lack of flying experience of some pilots. Althought it had been intended that only highly experienced flyers participate, Henry Arnold also felt that "more care should have been exercised in the selection of pilots authorized to enter."[30]

All fatal accidents involved the DH-4. Both Mitchell and Menoher implied that in most cases the location of the gas tank was responsible for the death of the front-seat occupant.[31] Actually, two of the accidents claimed both pilot and observer, and in two cases the rear-seat occupant died while the pilot survived. Only three accidents, those involving Dodd, Frissell, and Wales, claimed the pilot alone. The claims of the Air Service leaders might correctly be labelled as efforts to evade criticism or as attempts to justify conversion of the remaining DH-4s to Bluebirds. Blaming the DH-4 for the fatalities proved an effective reply to attacks on the reliability test, many of which possessed less rationality than the Air Service contention. The necessary DH modification program, after the reliability test, proceeded free from criticism.

The transcontinental reliability test led directly to establishment of air mail service between New York and San Francisco. Air mail chief Otto Praeger, departing from his usual charges that the Air Service was not interested in commercial aviation,[32] gave credit to the Air Service for opening up the transcontinental route west of Chicago. Praeger called for legislation to provide funds for transcontinental air mail service in the spring. The necessary funds were voted, and in September 1920 the New York-Chicago mail route was extended to San Francisco, using many of the landing fields developed for the reliability test.[33]

The test brought new impetus to the campaign for encouraging creation of municipal landing fields over the country. During and after the operation the Air Service received a flow of letters from cities interested in such projects. Belvin Maynard declared that he had received messages from over a hundred towns informing him of proposals to establish flying fields. National magazines gave voice to the indisputable need for proper landing places. Cities vied zealously to place themselves on air routes. The Air Service intensified efforts toward exploiting this enthusiasm, although lack of

[29]DAS to American Flying Club, 22 December 1919, 24 December 1919, AAF Files, RG 18, NA; testimony of Colonel Gorrell, 24 October 1919, House, *War Expenditures, Hearings*, 1919, 3015.

[30]Arnold to DAS, 6 November 1919, AAF Files, RG 18, NA; testimony of Maynard, 19 November 1919, House, *War Expenditures, Hearings*, 1919, 3665; memorandum for DAS from Mitchell, printed in House, *War Expenditures, Hearings*, 1919, 3017.

[31]*Ibid.*; quotation of Menoher, "Blame DH Planes for Race Deaths," *Automotive Industries*, XLI, 30 October 1919, 883; *Aerial Age Weekly*, X, 1 March 1920, 721.

[32]Eldon Downs, "Contributions of U.S. Army Aviation to Uses and Operation of Aircraft," Ph. D. Dissertation, University of Wisconsin, 1959, 39-42.

[33]*Congressional Record*, 66 Cong., 2 Sess., LIX, 16 April 1920, 5736; *New York Times*, 21 October 1919, 19; 21 February 1920, 19; 6 September 1920, 1; 12 September. 1920, 1; William Mitchell, "The Air Mail Service," *Review of Reviews*, LXII, December 1920, 625-632.

funds prevented major assistance to municipalities.[34]

Public interest in aviation had been awakened, to a degree that no lesser operation could have achieved. Glenn Martin reported that the race had unquestionably caused more and more people to think and talk flying. Commercial advertisers described the achievements of their products in the race. Books on aeronautics came into demand at public libraries. One Philadelphia citizen volunteered for the first flight to Mars.[35] Certainly the attention focused on the race was sufficient to produce a lasting influence upon the public view of the safety and dependability of flying. It is difficult to assess how deeply the accidents and fatalities which dominated the operation marred the nation's image of aviation. Six years later, a government fact-finding board named one of the principle conditions retarding progress in civil air transport:

> . . . a fear of the hazards of the air which makes it difficult to secure passengers, and a general idea of the airplane as a military or sport vehicle, unreliable for other use.[36]

The names of the ten pilots completing the transcontinental round-trip were inscribed on the MacKay Trophy for 1919, symbolizing high achievement in American aviation. A scale model of Maynard's DH-4 "Hello Frisco" was enshrined in the Smithsonian Museum. Secretary of War Baker officially directed that the landing grounds at the Presidio be named Crissey Field, in honor of Major Dana Crissey, killed at Salt Lake the first day of the transcontinental test.

A number of participants in the reliability test went on to greater fame. Lowell Smith and John Richter set an airborne endurance mark with a DH Bluebird in 1923 using in-flight refueling. Smith led the first round-the-world flight the following year. Russell Maughan, who piloted a SPAD from Mineola to San Francisco, later became the first man to cross the continent in a single day. Many of the participants served long careers in the Army air arm, and became prominent leaders in World War II, among them Smith, Emil Kiel, Richter, and Maughan. Carl Spaatz became Army Air Force Commanding General in 1946 upon the retirement of Henry Arnold. Harold Hartney, leaving the service, became associated with several aviation companies and figured prominently in the subsequent development of commercial aviation.

The future was less kind to Belvin Maynard. Maynard became embroiled in an unfortunate affair growing out of a written statement he supplied to the Anti-Saloon League in December. His statement was used to imply that alcoholic drinking had caused some of the deaths in the transcontinental contest. Though Maynard protested the "juggling" of his words, the ill-advised statement marred an otherwise brilliant Army career. Maynard left the service the next spring. Two years later Maynard met death, flying an exhibition over the Rutland, Vermont fairgrounds.[37]

The rationale behind the transcontinental reliability test had been strongly rooted in the fight before Congress for aviation appropriations and the separate

[34] Seattle Aero Club to DAS, 30 March 1920; R. Goodell to DAS, 13 October 1919; DAS to F. MacGregor, 22 April 1920; memorandum for Chief, Training and Operations Group from Captain B. Wright, 31 October 1919; President, Ogden Merchants, to Secretary of War, 31 October 1919, AAF Files, RG 18, NA; W. G. Shepherd, "Ships that have no Ports," *Colliers'*, LXV, 3 January 1920, 43-46.

[35] Glenn Martin, "Lessons of the Transcontinental Race," *U.S. Air Service*, November 1919, 13; "Report," *ASIC*, 32; testimony of Mitchell, 30 March 1920, U.S. Congress, House, Subcommittee No. 1 of Committee on Military Affairs, *Army Appropriation Bill, 1921, Hearings*, 66 Cong., 2 Sess., 1920, 455.

[36] U.S., *Report of President's Aircraft Board*, 1925, 9.

[37] *U.S. Air Service*, October 1922, 36; *New York Times*, 10 December 1919, 17; 18 December 1919, 13; memorandum for the Executive from Lieutenant Colonel F. Andrews, 27 January 1920, AAF Files, RG 18, NA.

air service. The hope that the American people could be brought to bear irresistable pressure for aviation legislation was often expressed by air leaders.[38] The zeal with which America followed the transcontinental race offered encouragement to those looking for such results. In December, General Mitchell was confident that the separate air force would become reality by spring.[39]

The evolution of the Army Reorganization Bill of 1920 forms a tale of controversy, misunderstanding, and bitterness. A small group of legislators championing the Air Service position saw their efforts doomed by the obsession for economy in Congress and preoccupation with the League of Nations fight. The movement for independent aviation had progressed far. Perhaps at no moment prior to World War II was the opportunity more favorable for creation of the separate air force. Yet, no wave of popular opinion swept upon Washington. The transcontinental reliability test, at a crucial moment, had made a strong bid for a movement of this kind. Although most Americans might have been convinced of the rightness of Mitchell's position, the issue was not great enough to generate a spontaneous referendum. Mitchell's faith in the voice of the people proved unfounded, as was again the case after the battleship sinkings of 1921 and 1923 and Mitchell's subsequent court-martial.

The transcontinental flights gave dramatization to Mitchell's strategic conceptions of concentration and centralization of air power. The inherent mobility of air forces had been demonstrated. The battleship sinkings off Virginia completed Mitchell's proof of the efficacy of the air weapon, properly employed. In later years Mitchell frequently returned to the transcontinental test in illustrating his postulates. Mitchell wrote in 1925:

> The continental speed tests of 1919 marked the beginning of the leadership of America in the application of air power—that is, in demonstrating how air power could actually be used . . .[40]

To a few, the transcontinental test revealed the enormous implications of air power upon warfare of the future. But the lesson was lost on a nation bent on economy and future avoidance of international involvement. America entered a period of retarded air development broken by episodes like the air mail fiasco in 1934, which produced a series of Air Corps fatalities reminiscent of the transcontinental reliability test. By 1925, the four principle international flying records—for duration, distance, altitude, and speed—had passed away from the United States.[41] In 1925, the Chief of Staff of the United States Army, when pressed as to why the strength of the Cavalry equalled that of the Air Service, spoke of aerial reconnaissance:

> In my opinion, the airplane is never going to take the place of the cavalry . . .[42]

A defense policy based upon the battleship evolved. America faced the outbreak of World War II inferior in aviation, both quantitatively and qualitatively, to every other major power. The selection of a correct national military policy, avoiding mistaken adherence to weapons of the past, hinges in the final analysis, unon the existence of an informed and articulate American public.

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[38] *Automotive Industries,* XLI, 2 October 1919, 654-655; address of Mitchell to American Flying Club, November 1919, printed in *Aircraft Journal,* V, 6 December 1919, 3; testimony of B. Foulois, 7 October 1919, U.S. Congress, House, Committee on Military Affairs, *Army Reorganization, Hearings,* 66 Cong., 1 Sess., 1919, 971-972; Glenn Martin, "Airplanes Safer than Automobiles," *Air Service News Letter,* III, 31 October 1919, 1-4; Editorial, *U.S. Air Service,* May 1919.

[39] Mitchell to Mrs. J. L. Mitchell (mother), 18 December 1919, Mitchell manuscripts, Madison, Wisconsin.

[40] Mitchell, "American Leadership in Aeronautics," *Saturday Evening Post,* CXCVII, 10 January 1925, 148.

[41] Henry Arnold, *Airmen and Aircraft* (New York, 1926), 54.

[42] Testimony of Major General John Hines, 21 September 1925, President's Aircraft Board, *Aircraft, Hearings,* 1925, 96.

# ABOVE THE FOE*

*Motto of the 78th Fighter Wing (Defense)

By KENN C. RUST

On 26 January 1942, the first convoy of United States' troops arrived in Northern Ireland while in the Pacific U.S. forces in the Philippines completed their withdrawal to the final defense line on Bataan. At the same time the 78th Pursuit Group, constituted by Army General Order on 13 January, began gathering its original cadre at Mitchel Field, New York. Two weeks later the Headquarters Squadron was activated at Baer Field, Ft. Wayne, Indiana, and the Group's three pursuit squadrons, the 82nd, 83rd, and 84th, began forming.

Shortly after formation the Group moved to Muroc Dry Lake in California and then to Hamilton Field, California. During its stay at Hamilton two of the Group's squadrons were dispersed—the 82nd being stationed at North Island in the Navy city of San Diego, California; the 84th being at Oakland Municipal Airport, Oakland, California just across the bay from the finest leave city on the Pacific coast; while the 83rd was with the Group at Hamilton.

During May 1942 the Group was equipped with its combat aircraft—Lockheed P-38s—and redesignated the 78th Fighter Group. Training progressed rapidly until November 1942 when the Group entrained to Camp Kilmer, New Jersey for overseas processing. That processing didn't last too long, and on 24 November the 78th sailed for England aboard the Queen Elizabeth.

1 December 1942 saw the Group arrive at its first station in England, Goxhill in Lincolnshire. By Christmas the Group's P-38s had arrived and were scattered among the sugar beets in dispersal areas. Plans went quickly forward to go into action with twin-engined fighters, in February, but the Army Air Force didn't always take the most direct course. In late January 1943 a handful of big, ugly P-47 Thunderbolts arrived at the field, and then the P-38s were flown to Ireland for "modifications." When the P-38s returned, four North American B-25 bombers came in to the field with them!

It really wasn't as confusing as it looked to the various members of the Group. The P-38s and their pilots were needed by the 12th Air Force in North Africa. So, after a spell of bad weather, the P-38s with their "navigator" B-25s took off, gave the field a farewell "buzz job" and headed south. Only 15 of the Group's seasoned pilots, including the C.O., Lt. Col. Arman Peterson, his staff, squadron commanders and flight leaders, stayed behind.

New pilots and more P-47s came, and another training period was hurriedly completed. Then it was April Fools' Day, 1943. The 78th moved—to Duxford, sometimes referred to as "the Country Club of the E.T.O.," with its central heating, tiled showers, and modern brick buildings. On 8th April, 12 pilots from the 78th flew a fighter sweep from Debden with the Fourth Fighter Group. It was uneventful, but the time of action was at last at hand.

Just before noon on 13 April, Lt. Col.

Peterson led 12 planes from the 83rd Squadron into the spring skies to join two squadrons of the Fourth in a fighter sweep over northeast France. They penetrated as far as the Luftwaffe base at St. Omer but sighted neither enemy aircraft nor flak. The first aircraft was lost on this mission when it developed engine trouble and the pilot bailed out northeast of Calais and was picked up by Air-Sea Rescue.

Four and one-half hours later Lt. Col. Peterson led 12 planes of the 82nd on another fighter sweep with one squadron from each of the 4th and 56th Fighter Groups. Again no action developed. Another mission was flown on 15 April with the Fourth before the Group flew its first purely individual mission. That was 17 April and two missions were flown, both proving as uneventful as those before. On 29 April the Group sent out its first formation of three 12-plane squadrons, and on 4 May sent out three 16-plane squadrons—it was in the groove at last. And finally came the 14th of May 1943.

The pace had quickened steadily and now it reached it first climax—combat. Col. Peterson, who had just been promoted to full colonel, led 48 aircraft of the Group on a bomber-escort mission to Antwerp. The mission was routine until the bombers were over the target area, then there suddenly appeared some 20 Focke Wulf Fw 190s and Messerschmitt Bf 109s making for the bombers at between 20,000 and 24,000 feet. Immediately Col. Peterson led the attack and the 78th was blooded. Major James J. Stone, CO of the 83rd Fighter Squadron, got the first kill with a 190, while Capt. Robert E. Adamina also got a 190 before he was shot down. Two others were "probables" and five were "damaged" including one by Col. Peterson. Against this the 78th lost three aircraft and pilots, but more important was the fact that only one B-17 was lost that day. The escort had done its job.

Of the three lost pilots none was killed, and one became the first Duxfordite to evade capture. He was Capt. Elmer E. McTaggart who lost 25 pounds in working his way south across France and the Pyrenees into Spain and thence back to England. Capt. Adamina was one of the other two pilots lost. Seriously damaged in scoring his victory he rode his Thunderbolt down to the water and became one of the few to successfully ditch a P-47. He was later taken prisoner for the rest of the war.

For the remainder of May and through June operations settled into a routine for the Group with bomber escorts and fighter sweeps and more bomber escorts. Then on 1 July the impossible happened—the Group's commanding officer, the man who more than any other *was the Group*, Col. Peterson, was lost. It was a fighter sweep during which Col. Peterson spotted a number of bandits below his Group.

"There they are. Here we go."

Those were the last words anyone ever heard from him. He led the planes down on the Jerry fighters below and the fight was on. He must have seen one trying to slip away. He headed for a big white cloud and disappeared into it. That was the last time he was seen. When the pilots arrived back at Duxford and realized Col. Peterson was missing, no one had to give orders. They quickly refueled and headed back over the area where they had fought, looking for Pete. They flew around searching, hunting, spoiling to find a Jerry and pay him back, until their fuel ran too low. Then, without Pete's whimsical voice to command them, they headed back for home.

The entire Group was affected, they'd lost someone very close. Lt. Col. Melvin McNickle assumed command of the Group and the war went on. The 30th of July came and for the first time the P-47s carried belly tanks and, for the first time they were able to take up their escort duties of the heavy bombers over Germany itself.

The Eighth's heavies bombed Kassel that day and as they withdrew were met

by the 78th and one other P-47 group over Haldern, Germany. The Thunderbolts, spreading their protective wings ever farther now, caught the Luftwaffe by surprise. For the first time in the E.T.O. an American fighter group ran its single mission's score into two figures. Capt. Charles P. London scored a 109 and a 190 to become the first American ace over Europe. Major Eugene P. Roberts got two 190s and a 109 to score the first "triple" in the E.T.O.

On the way home, Lt. Quince L. Brown strafed a locomotive and a gun emplacement and became the first U.S. pilot in the theater to shoot up a ground target. That was a lot of firsts for one mission, but the mission was not without its losses. Three aircraft were lost, and for the second time within a month the 78th lost its C.O. Lt. Col. McNickle was shot down and became a prisoner of war.

Lt. Col. James J. Stone took over command of the Group and there began a long string of escort missions ever deeper into Germany as new belly tanks came along to extend the range of the P-47s ever farther.

By this time the 78th Fighter Group had its distinctive markings. First there were the buzz letters carried on the sides of the fuselage to the rear of the cockpit. Two letters represented the squadron, one identified the particular aircraft. The 82nd Fighter Squadron was MX, the 83rd HL and the 84th WZ. The odd fact about these buzz letters was that the 78th was the second group to carry them into combat over Europe. The 31st Fighter Group had been given the same identification letters back in July 1942 and had carried them on their Spitfires when they went into combat on missions like Dieppe. (The 31st kept the same buzz letters throughout its further campaigns in North Africa and finally Italy, when it became a part of the 15th Air Force. The two groups were the only ones in World War II to carry each other's squadron buzz letters, and both were of the finest.)

A further mark of identification for the 78th was the black and white checkerboard cowlings of their big P-47.

By the time the 31st of January 1944 rolled around the 78th was ready for another of its firsts. On that day the Group participated in its first fighter-bomber mission. Thirty-five 500-pounders were plunked down on the runways of the Gilze-Rijen airdrome in Holland. A week later the 82nd and 84th squadrons participated in the Group's first organized strafing attack against targets in Europe. In the process they were bounced by 190s, hit the deck and managed to shoot down two of the 190s in the air. These victories were added to the two aircraft destroyed and 6 damaged on the ground by the two squadrons. They also damaged three freight locomotives, one tugboat, and strafed three airdromes.

The pace continued to speed up. On 24 May 1944 the 78th tried something entirely new—high altitude, precision bombing. That day they formed on a P-38 Droopsnoot, with a bombardier in the nose, and each P-47 carried a 500-pounder under the fuselage. The formation proceeded to a railroad bridge near Creil, France, and on a signal from the P-38's bombardier cascaded bombs onto the span with good results.

May passed and along came 6 June 1944. Invasion stripes were painted on the P-47s and, from before dawn until dark, the 78th flew mission after mission in support of the invasion forces. They kept it up well into June, and the going got progressively tougher.

On 10 June 1944 the Group flew four missions, and on the third of these was jumped by a strong force of 109s and 190s. The Thunderbolts, whose formation had already been seriously disrupted by extreme cloud and icing conditions were just beginning their bombing runs on a marshalling yard when they were bounced. The 109s bore white stripes resembling Allied invasion markings, and some even had British roundels. It was a bitter battle, and when the day ended the Group had suffered its costliest day

of the war. Ten aircraft were lost, including that of Maj. Harold E. Stump, C.O. of the 84th Fighter Squadron.

July and August passed, the Allies burst out of the Normandy Penisular, through Paris to the frontiers of Germany and into the Low Countries.

On 28 August, the 78th had its first encounter with the powerful and new German jet fighter, the Messerschmitt Me 262. Only that engagement didn't turn out too well for the Luftwaffe. Major Joseph Myers with Lt. M. O. Croy, Jr. flying as his wingman spotted an Me 262 at Termonde in the Brussels area. They were at 11,000 feet and the German at 500 feet when visual contact was made. The P-47s immediately went down in a 45 degree dive, reducing the angle of dive as the speed of the jet made it difficult to catch. At 1,000 feet the P-47s were indicating 475 m.p.h. as they came into range. The Me 262 then made three or four very flat turns as Major Myers and Lt. Croy closed in, then suddenly it lost control and plowed into the ground at high speed. Scratch one Me 262.

September came and the stage was set for a gigantic flanking maneuver designed to afford the Allies with an opportunity to sweep quickly into Germany by airborne landings behind the German lines in Holland at Arnhem and Nijmegen.

The operation began on 17 September 1944. Before the airborne troops landed, however, 50 Thunderbolts of the 78th went out to prepare the way for them. Scouting over an assigned area between 2,000 and 2,500 feet the P-47s drew enemy flak, spotted its location and went down to bomb and strafe the carefully hidden gun positions. Fifteen minutes after their attack began all but one unlocated 88 battery had stopped firing.

With the landing zone cleared the Duxford aircraft returned to the Dutch coast where they picked up glider towing C-47s and escorted them into the LZs. As the gliders cut loose and landed, the P-47s followed to silence any ground fire they might encounter, but the ground guns were silent from their previous attacks and the landings proceeded successfully.

On 23 September, the 78th, in continuing the Dutch operations, saved several score of C-47s and Stirlings from almost certain destruction. As the cargo and transport aircraft approached the Arnhem area, the 78th met a heavy barrage of light flak, both 20 and 40 mm stuff. Two squadrons immediately dropped down and silenced concealed guns located in a church and along nearby hedgerows. A few of the flak positions, however, shot down three C-47s a few minutes later before they were hit by the third squadron of P-47s and completely silenced. After that, three more formations of C-47s and Stirlings flew up and dropped supplies right in the middle of what had been a heavily defended area without drawing a single burst of flak. For these operations the 78th was awarded it first Distinguished Unit Citation.

By December the Allies were more than surprised by the German counter-offensive which was the Battle of the Bulge. In England the 78th was more than surprised itself at it received a batch of unwanted Christmas presents—North American P-51-D Mustangs. The 78th pilots who had once been so unhappy at having to give up there P-38s for P-47s now held the same feelings and misgivings for the sleek new Mustangs. It became an especially hard pill to swallow when on 19 December the Group's P-47s were the only fighters in the 8th Air Force to take off and escort bombers in attacks on von Rundstedt's commuications in the Ardennes. While fog kept other groups grounded the 78th chalked up seven victories.

On 29 December the 78th flew its first Mustang mission, but the day of the P-47 was not yet over. On 31 December, Capt. Julius P. Maxwell flying the last mission of his tour and the 78ths last P-47 mission destroyed the Group's 400th Nazi plane. Five days later the Group completed its switch over to P-51s and Bergen G-suits.

January rolled into February 1945, and that month became the costliest month of the 78th's tour. Sixteen missions that month saw 18 pilots reported missing in action and three others were killed while returning from missions. Against these losses the Group destroyed 105 locomotives, 19 oil cars, and killed 35 German soldiers. On the 20th of February 1945 Lt. Col. John D. Landers took command of the Group.

The Rhine was crossed in force during March and the war rolled towards its climax. But the 78th was not quite finished doing its job or setting records. On 10 April the 78th destroyed 52 and damaged 43 grounded German aircraft. Then on 16 April the Group set an all-time high record for destroyed and damaged aircraft on the ground by an 8th Air Force fighter group. On that day, patrolling over airfields in the Pilsen-Prague area of Czechoslovakia, the 78th destroyed 135 planes on the ground and damaged a further 89 with loss of only three pilots. For this final record of records they received their second Distinguished Unit Citation.

Six more missions followed until, on 25 April, the Duxford pilots flew their last operation of World War II—escorting RAF bombers in an attack which shattered Hitler's retreat at Berchtesgaden. It was a perfect way to end their operations. During its more than two years in England the 78th Fighter Group was credited with the destruction of 338½ aircraft in the air and 358½ aircraft on the ground.

Being one of the older fighter groups in the E.T.O. the 78th did not leave England until October 1945. On 18 October 1945 the Group was inactivated at Camp Kilmer, New Jersey. In the decade following its inactivation the 78th and its squadrons led a varied, on-again, off-again existence.

August 1946 saw the 82nd and 83rd Squadrons reactivated and returned for occupation duty in Germany where they stayed until June 1947. At that time the Squadrons were returned to Mitchel Air Force Base, Long Island, New York as a part of the Air Defense Command. In October 1948 both Squadrons were again deactivated, only to be reactivated on 16 November 1948 with the now 78th Fighter Wing at Hamilton Air Force Base, California. Along with the 84th Squadron the whole organization was once more back together again.

In January 1949 the 78th began converting from propeller-driven aircraft to jet-propelled Republic F-84s. First under Continental Air Command and then under the Western Air Defense Force the 78th was redesignated the 78th Fighter-Interceptor Wing on 20 January 1950. It remained at Hamilton until again inactivated on 6 February 1952.

Before inactivation, however, the 83rd Fighter - Interceptor Squadron was equipped with Northrop F-89 Scorpions and transferred to Paine Air Force Base, Washington. By 1954 the Squadron was flying North American F-86-D Sabres and remained at Paine AFB until the summer of 1955.

Then, in conjunction with Project Arrow, the name and history of the 83rd Squadron was assumed by the 325th Fighter-Interceptor Squadron, stationed at Hamilton AFB and also equipped with F-86-Ds. At this same time the 413th FIS at Travis AFB, California became the 82nd FIS, and the 566th Air Defense Group at Hamilton became the 78th Fighter Group including the 84th Squadron. All history, honors, and battle credits of the original 78th Group were assumed by these organizations.

On 18 October 1956 the 78th Fighter Wing (Defense) was reactivated at Hamilton AFB and took over command of the 78th Fighter Group and its organizations, plus the 456th Fighter-Interceptor Squadron based at Castle AFB, California which had been assigned to the 78th Group.

It had been a long road but the organizations of the World War II 78th Group were all back together again and func-

tioning as a team. Whereas during the war the Group operated with three different types of fighters while in England, the 78th Fighter Wing today flies four separate types at one time—giving it a true, cross-section appearance of U.S. Air Force supersonic fighter aircraft, 1960.

The 82nd at Travis AFB flies Convair F-102 Delta Daggers, the 83rd flies Lockheed F-104 Starfighters out of Hamilton AFB, the 84th, also at Hamilton, flies McDonnell F-101B Voodoos, and the 456th flies Convair F-106 Delta Darts out of Castle AFB.

Together the mission of these squadrons and the 78th Fighter Wing today are to provide air protection for the San Francisco Bay Area and the surrounding Air Force bases, and to train and support all assigned and attached units. And the job is being done, and will go on being done with the same spirit which carried the 78th Group to so many high accomplishments and firsts during World War II.

World War II section based on DUXFORD DIARY, history of the 78th Fighter Group. Postwar section based on BRIEF HISTORY OF THE 78TH FIGHTER WING, 1948-1957. Other material from the Information Officers of the Squadrons and Hamilton AFB.

*Air Force Academy Cadet Charles R. Cheeseman, Portersville, Pa., right, purchases the first Cadet Wing student membership in The Air Force Historical Foundation from Royal Air Force Squadron Leader John A. G. Slessor, officer-in-charge of the Cadet Professional Studies group. Slessor is assigned to the Academy as an exchange officer on the military studies staff. Looking on are Cadet Nels N. Niemi of Eugene, Ore., and Lt. Col. Eldon W. Downs, Department of History associate professor. Cadet Niemi is Chairman of the Cadet Professional Studies group and is directing the cadet drive for membership in the Foundation. Col. Downs assisted in editing the Foundation's January 1961 quarterly, "The Airpower Historian," which is made up of literary contributions from Air Force Academy Officers.*

# OUR MILITARY ESTABLISHMENT

*A reprint of Chapter XIX, from AIR POWER: KEY TO SURVIVAL, by Major Alexander P. de Seversky. Published by Simon and Schuster, 1950; by permission of the author.*

SINCE THE SUMMER of 1947, when the newly unified Department of Defense was launched, the American people have watched, as through a glass darkly, a mystifying struggle among the three services: Army, Navy, and Air Force. Because the issues have nowhere been clearly defined, the public has become more and more bewildered.

Emphasis on the word "bickerings" has been unfortunate. Had the differences been dignified with a serious label, had they been billed as a great military debate, their importance would not have been so sadly blurred. But the picture projected on the public mind was of a lot of officers feuding over money and privileges, the kind of quarrels that can be ironed out by a firm administrative hand.

Then, in the fall of 1949, came the sensational "blow-up" in Congressional hearings precipitated by "rebels" in the Navy. As the spectacle unfolded, the nation began to sense that these were not paltry bickerings at all but deep-reaching conflicts of opinion on weapons and methods of conducting war. The readiness of high-ranking naval personnel to defy superiors and risk their careers revealed the earnestness of their concern. The treatment of the interservice tensions as a squalid squabble over personal advantages, intelligent observers realized, had been utterly ungenerous toward the military men involved. The fact is that each of them is patriotically defending his innermost convictions.

One thing, therefore, should be clearly understood. The differences between the Army, Navy, and Air Force are not trifling. On the contrary, they refer to

MAJOR ALEXANDER P. DE SEVERSKY

the most basic strategic concepts and problems. There are also secondary disagreements which can and should be adjusted by an able executive. But the fundamental questions are related to the nature of the whole defense program. To hide or to soft-pedal them is to prejudice the chances of a correct and timely solution through democratic process.

Under the noise and confusions is the reality of a head-on clash of old and new concepts: specifically, between the makeshift land-sea-air strategy evolved in World War II and the all-out air strategy made possible by technological progress. As we have seen, the advent of a new military force means that the world faces far-reaching changes in methods of making war. And the location

of the two leading powers, the U.S.A. and the U.S.S.R., on different continents makes those changes urgent and inescapable. We cannot continue to pretend that nothing essential has changed, or that the profound issues can be resolved behind closed doors by a few admirals and generals on the basis of "good will" or "discipline."

The cure for "bickering" urged from so many directions—to arm the Secretary of Defense with absolute powers — is worse than the disease. Under our way of life there is no possible form of discipline that can prevent principled military men, who feel that mistaken plans leave the country in danger, from carrying their feelings to the nation. Naturally, when they do so they must be prepared to take the consequences. This has not undermined discipline in our armed forces in the past and never will.

Tactics and weapons—I must repeat —are the province of specialists and should be kept under wraps. But strategy, the basic plan of war, must not be hidden from the world. It announces itself unmistakably, in any case, in a country's industrial setup, allocation of materials, foreign affairs, and a hundred other ways.

Could Napoleon have disguised his plans of conquest with great armies? Could England in the past have concealed its intention to be overwhelmingly potent on the seas? Even if it had been possible, they would not have wished to camouflage the nature of their strength. If strategy is to serve as a deterrent to possible enemies, it should be known to everybody.

In the epoch of total war, strategy calls for sacrifices and cooperation by the entire population. It cannot be effective unless fully understood, ratified, and supported by our people. Strategic decisions affect not only the military but every aspect of a nation's life: its industry, raw-materials plans, diplomacy, education, everything. Alternative plans must be laid fully and frankly before the President, the Congress, and the American people for their appraisal. Indeed, the people and their representatives have a responsibility they cannot evade—to learn all the facts and ultimately make the vital strategic judgments.

Civilian control of the military establishment is a democratic premise on which everyone agrees. But too many fail to understand that centralized authority to "settle" strategic disputes, even if vested in a civilian, is incompatible with such control. A dictator in mufti is no less a dictator than one in uniform. Hitler, despite his pretensions, was not a military man; yet there was no room for civilian influence in his military machine.

No, the formality of a non-military department head is not enough. The essence of civilian control is wide popular participation in the primary strategic decision. It means the unabridged right of the people to know the pertinent facts and problems, and their unabridged obligation to take part in the decisive choice.

In a democratic society there is actually no alternative. The attempt to keep out the people, to gag dissenters, may succeed for a while, but the inner pressure built up will explode in due time into public scandals. Cautioning against the tendency to load the Defense Secretary with all-out power, I wrote that it "can only lead to revolts within the military establishment, followed by disciplinary sanctions against 'rebels' and the loss of vital military brains to the country."* A few months later the naval explosion fulfilled the warning.

The remedy for interservice disagreements widely urged for several years, as tensions increased, had boiled down to endowing one man with well-nigh dictatorial powers. Full power for the Secretary was the theme song of endless articles. At least one of these had the virtue of candor. It made proposals which would give the Secretary of Defense "exclusive power to draft" military

*"Are We Headed for Military Dictatorship?," *Pageant;* April, 1949.

budgets and "full authority over their presentation to Congress;" "power to require the services to speak with a single voice and to summarily discipline those who speak out of turn."* In line with this plan, Mr. Forrestal himself asked that the Defense Secretary be given the "right to hire" the Secretaries who head the three services.†

Had this plan been accepted, civilian control would have become an empty formula. The military establishment would have been removed from democratic direction. Congress and the President would have been limited to one official program, on a take-it-or-leave-it basis. Through control of the purse, public opinion—by way of Congress—might still have influenced the *scope* of military preparedness but not its *nature*.

The irony of the story is that the propaganda for extreme regimentation was largely generated by the Navy, which previously had fought against unification. It had finally accepted unification on condition that Navy roles and missions be written into the law and that Mr. Forrestal, the Secretary of the Navy, be made the first Secretary of National Defense. With the launching of the unified setup, the Navy made an about-face, and began to promote centralized authority. Then fate intervened. Mr Forrestal, shortly before his death, was succeeded by Louis A. Johnson, a man better able to comprehend the air-power viewpoint. Within the limits of the law, the new Secretary proceeded to use the kind of one-man authority the Navy had been urging. But when the admirals found his decisions to be unacceptable, they promptly and dramatically carried the issue to the people.

THE FIRST WORLD WAR ended without any startling new strategic developments. True, airplanes were used for the first time and their efficacy was improved in the war years; it was obvious that their size, speed, and firepower could be stepped up. But this was simply the addition and improvement of another weapon for enhancing surface warfare. Basic strategy was known and fixed, whatever adjustments might be made within the established pattern.

Unification of our military structure would therefore have been possible at that time. We did not choose to unify. On the contrary, the Army and Navy treated each other almost as hostile forces. Air Force was split in two, each half completely subjugated to earthbound minds in the major services. Not until Pearl Harbor demonstrated the weakness of the organizational setup was the possible need for unity so much as admitted.

The Second World War, by contrast, ended on the threshold of the most far-reaching changes in the annals of human conflict. The whole foundation of war-making was rendered obsolete almost overnight by the appearance of aircraft of hemispheric range. For the first time in history, an entirely new medium for the conduct of war became accessible: the air ocean. It demanded the creation of a new military force suited to this medium —and a radical revision of all inherited strategic concepts.

It became apparent that many of the World War II methods would have little if any relevance for future conflicts. At the very minimum a re-examination of all accustomed military thinking was called for. But precisely in this period of revolutionary readjustment, we have chosen to "integrate" the services. Arguments are being made for regimenting the establishment, to "discipline" the new force; attempts are being made to perpetuate—*by law*— strategy and tactics of World War II vintage.

Through mere seniority, surface strategists are in substantial control, making final decisions involving the use of a force about which they know little and to which they are generally hostile.

*"Is Disunity Wrecking Our Defense?," by William B. Arthur; *Look*, September 18, 1948.

†"Can the Army and Navy Get Together?," by James Forrestal; *Saturday Evening Post*, November 27, 1948.

They assume that if new strategy is needed, it will develop gradually, step by step, out of the World War II experience. They do not grasp that it will not be a *refinement* but a total *repudiation* of past methods. And it is not difficult to explain their error. In the light of their particular traditions, they are honestly petrified by the prospect of warfare suspended, as it were, in the blue — without the old reliable props on land and sea. They shy away from the vision as if it were some kind of Indian rope trick.

Under these circumstances, centralized authority is no longer practicable. It would almost preclude the possibility of making a correct decision. My strictures, in other words, are not against integration in principle but against the timing.

The essence of the matter is in the transitional character of the present period. We are in a unique historical moment, necessitating a unique approach organizationally. To our generation has fallen the responsibility for a fatefull choice among competing military ideas. To leave the formulation of the overall strategy to a single authority without benefit of free discussion would be a victory for bureaucracy over common sense.

At a time like this the widest possible latitude must be allowed for creative strategic minds; for the ability to cast off textbook precepts and visualize the emerging laws of warfare. A premium must be put on bold innovation and mental freedom rather than on orthodoxy or compromise to show "good will."

Our military establishment today should be in line with these compelling realities. Those endowed by law with the most power do not necessarily have the most wisdom. Besides, under our way of life neither laws nor executive edicts can be enforced without enlightened public approval; our experience with Prohibition is the classic lesson in this respect.

The memorable Congressional battles over the 70-group Air Force in 1948 brought a major dispute into the open. The first thing to be noted is that the question was not a petty one but one which went to the heart of our strategic plans. The second is that Congress ultimately gave almost unanimous support to the "insubordinate" Secretary of Air, overruling the views of the Department head of the time.

Suppose that the appeal to public opinion had been forbidden, or that we did not have a Secretary of Air as courageous and patriotic as Stuart Symington. The air-power argument would have been suppressed. The American people would not even have known that a vital conflict of opinion existed.

One of Mr. Johnson's first moves, after assuming office, was to issue an administrative edict calling off the construction of the projected aircraft supercarrier. I have already given my reasons for considering the naval mastodon a waste of money and no more than a monument to confused military thinking. Thus I found Mr. Johnson's action justified from a military point of view. Nevertheless, it seemed to me a dangerous precedent. The issue is not whether a particular decision on fundamental military concepts is right, but whether any one person should be vested with life-and-death authority over America's destinies. The power to make correct decisions implies equal power to make disastrous decisions.

Under the outwardly innocent demand for increasing the size of the carriers lurked the Navy's ambition to extend its strategic role beyond the seas, deep into the interior of hostile land masses. It was not, therefore, a matter of building a single mastodon. To carry our strategic air effort to the enemy on floating bases effectively would require hundreds of these supercarriers at a cost of hundreds of billions of dollars.

Cancellation of the supercarrier had more far-reaching implications than the country grasped. That ship is the supreme expression of naval strategy under present conditions. As long as the Navy is treated

as a primary strategic force we cannot withhold what it considers its basic weapon, any more than we could reasonably deny long-range bombers to the Air Force or the best tanks to the Army. The Navy's attempt to perpetuate its strategic function in the air age reached an extreme of absurdity in a patently absurd weapon. In cancelling that weapon Mr. Johnson in effect was ruling that the Navy had lost its strategic role as an offensive force. But the decision to change the status of the Navy from a primary strategic force to an auxiliary should have come first, after which the elimination of the supercarrier would have followed as one of the obvious consequences. We must not confuse the creation of overall strategic concepts with their administration and implementation.

The basic question was not whether to give the Navy a floating island or two. It was whether our country and its industrial complex should be turned into a huge shipyard producing naval vessels and miscellaneous tactical aircraft—or whether America should become an air-power nation, devoting its industrial potential to the tools for taking command of the skies all over this globe.

Any such fateful decision clearly should not be made by a single individual. The conflicting views on the carrier should have been fully canvassed by Congress and the President. Since the subject goes to the core of our strategy, affecting the very foundation of our military establishment as fixed by law, the entire discussion should have been in the open. The danger is not in the so-called bickerings. It is in the cessation of bickering on the inadmissible basis of deals, bargains, or administrative duress. Should a phony interservice peace be enforced, we shall have reason to worry. It would mean that the great debate on proper strategy will have been choked off.

But, as the naval "rebellion" clearly showed, it would not remain choked. Military thinkers of principle, whether admirals or airmen, are not likely to submit meekly to what they consider calamities. Honest differences of opinion in the military domain are natural and wholesome at any time. At present, when scientific advances demand drastic recasting of military assumptions, intellectual rivalry is understandably sharp. Because the stakes are high—peace or war, victory or defeat—the disputes are naturally touched with passion. But this is as it should be.

The majority report of the Hoover Commission military "task force" proposed "strengthening central authority" and "improving teamwork" in the military family. Its emphasis was on "smoother performance of the security machinery." Those who drafted it evidently did not consider the supreme problems of the period: *the reorientation of strategic thought and how it can be achieved most rapidly, most correctly, within our means.*

Concentrating on "unity," they forget that a smooth-running machine will hardly serve America's best interests if it is running in the wrong direction. No one can quarrel with suggestions for more efficient administration. But insofar as it affects overall planning in this transitory period, the drift toward regimentation must be resisted.

ADVOCATES of approximate regimentation insist that Congress, being "a bunch of civilians," is not qualified to make strategic decisions; that the matter is too technical to be entrusted to the people. This is a dangerous theory. If accepted, it invalidates our whole democratic idea of self-government.

If civilians without specialized training are unfit to determine basic strategy, then they are equally unfit to determine atomic-energy policy, foreign policy, military alliances, trade treaties, and other intricate phases of national life. These, too, are highly technical. Yet Congress, after studying diverse views and claims, has always laid down the main lines of policy. The soundness of the method is a historically demonstrated

fact. The logic of the opposing contention would reduce legislatures to rubber stamps for experts in every important area.

The experts certainly know best in matters of detail, in the mechanics. But in fixing overall policies they have no monopoly on wisdom. Often they are hampered by their professional interests and loyalties. It is a matter of record that in the war public opinion was ahead of the military leaders on many broad strategic questions. Congress makes mistakes—but no more and no more serious than those made by executive officials exercising delegated powers.

Congress has often been a convenient whipping boy for military blunders. Beginning with Pearl Harbor, Army and Navy men alike have been inclined to blame the people and their representatives for initial defeats. Had military chiefs had more money to work with, they implied, everything would have been different.

This view neither was fair to the American people nor did it correspond to the facts. The defense of the nation had been put into hands of experts. In appraising what they did with that responsibility, it appears that the trouble was far less in the matter of quantity than in the matter of quality. It was not a case of "too little and too late" but a case of the wrong things in the wrong places. And for that, assuredly, the blame rests with the experts, not with those who paid their wages.

The island of Guam has long served as the prime example of the shortsightedness and niggardliness of Congress. But suppose that Congress had provided the funds for Guam, what would have changed? Our fleet would then have been sunk in the Guam harbor instead of Pearl Harbor. The disaster would have been even more tragic: the entire Guam garrison would then have been slaughtered, taken prisoner, and subjected to a death march. We know that even with limitless money at its disposal, the Navy would not have invested it in air power. Guam and other Pacific islands would have been turned into a few more futile naval bases, to be swamped by Japanese air might.

Whenever a military man refers to the parsimony of Congress, he should be reminded that until the very day of Pearl Harbor the American people were being assured that the country was adequately prepared; those who differed were called crackpots. In September, 1940, during his visit to Hawaii, Secretary of the Navy Knox informed the American citizenry that "the United States has the greatest, the most powerful, and the most effective fleet on the high seas anywhere in the world."

What he did not say—because he did not understand it — was that naval strength had become secondary in the strategic picture. Because our strategy was fallacious, additional funds would simply have given us more of the futile weapons. Indeed, the fact that we had too little to spend meant only that we provided fewer inert targets for the enemy to wreck. Had the Navy been given more money before the war, fifty battleships might have been destroyed at Pearl Harbor instead of only five.

If we had had bigger appropriations, our planes still would not have carried more armor, more machine guns and self-sealing tanks. Those prerequisites were lacking because of wrong decisions made arbitrarily by leaders who had little if any idea of what modern air combat requires. The real mistake of Congress and the people was to entrust the formulation of strategy to the wrong specialists.

When the blunders of those who did the planning became grimly evident, Congress, the President, and other civilians meekly shouldered the blame. To put the finger on the real culprits, they believed, would have undermined morale in the armed forces, in the midst of war. Their generosity tended to confirm the mistaken supposition that inadequate funds rather than inadequate military understanding had left America so vulnerable.

A study of the last war proves, I am convinced, that the democratic approach has the great advantage of flexibility. A lively and informed public opinion was able to break through tradition and vested military privileges, forcing indispensable changes and "unfreezing" mistakes. The totalitarian belligerents, by contrast, were stuck with their blunders. The enthroned stupidities of "infallible" leaders could not be challenged.

In a report to the Secretary of War after questioning defeated German military chiefs, I expressed my view that the main reason for Germany's defeat was the regimentation of its military machine. There were no brakes on the intuitions and hunches of the corporal-dictator, whether it was a question of revamping German air power or invading Russia. This judgment was confirmed in my long interrogation of Marshal Göring. The head of the *Luftwaffe* talked frankly, as one airman to another. The gist of his story was that the myth of an all-knowing *Führer* precluded the creation of strategic air power after the loss of the Battle of Britain had demonstrated the need for it.

Called upon to attack England from the skies, Göring had to attempt strategic bombing with tactical aircraft and was defeated by the superior Royal Air Force. Like nearly all surface-minded war analysts in America, Hitler misread the lesson of that failure. He simply soured on air power and was thereafter chained to the surface.

Hitler was in effect his own Secretary of Defense. He exercised the kind of single authority which some people seek to assign to our own Secretary. Because he staked everything on land warfare, his *Luftwaffe* remained a purely tactical force. The total resources of Germany were mobilized for supreme strength on the ground, with nothing to spare for real air power.

Göring and others who understood this blunder could not appeal to the German people. His efforts to build a real bombing force, Göring told me bitterly, were hopeless. His "beautiful bombing fleet was used up in the miserable role of freight cars carrying shoes, blankets, and mittens to the ground troops."

As he talked, I thought of the immense advantage of our democratic life. We, too, entered the war with the wrong kind of aviation and strategy. We, too, had discounted strategic air power. But the clamor of men at the fronts and air-power experts at home, backed by public opinion, helped to unmask the mistakes. In due time strategy was revised, planes were redesigned; escort aircraft were provided, despite the fact that our Chief of Air Force himself thought them unnecessary. Our high command was obliged to reckon with a ground-swell of popular opinion even in time of war. Thus it was not long before the democratic Allies overtook and outdistanced enemy air power.

The kind of centralized power in the strategic sphere which was Germany's undoing may sneak up on us unless we are vigilant. It is reassuring to know that virtually our entire military personnel is aware of this and shares the view I have expressed here. In the midst of the heated unification dispute, I published a number of articles warning against the dangers of centralized control in the Defense Department. Literally hundreds of letters reached me from high officers of our armed forces not only concurring in but emphasizing the advantages of our system of checks and balances, even in the military sphere.

It is remarkable that men trained in rigid discipline should retain their sensitivity to democratic values. It seems apparent that they are Americans first, military men second. Not only do they not seek a dictatorial role for the military but they would be in the forefront of those resisting any such encroachment.

The American people must understand that in the formulation of a correct strategy in this unique period there can be no genuine compromise. The correct answer cannot be obtained by averaging opposing viewpoints, any more than surgeons, failing to agree on a diagnosis,

can settle the issue by operating on some in-between part of the anatomy. A strategy is either right or wrong—and we can't risk being wrong.

Suppose a river is to be crossed and three experts—a tunnel builder, a ship designer, and a bridge specialist — are called in to solve the problem. Each man will honestly insist that his own method of crossing is the most economical and efficient. Being human, he will instinctively react against a solution that would automatically eliminate him from the job. It would make no sense to lock the three experts in a room like a hung jury. There could be no compromise solution, since no single structure can embody the principles of all three systems of river-crossing. A floating bridge dragged by ships through a tunnel would be idiotic.

If the project were left to those experts we would probably wind up with all three: a tunnel, a bridge, and a ferry. But money being limited, the structures would be flimsy and untrustworthy. In the end, those who hired the specialists would have to make the decision themselves. Having heard the three sets of claims, they would order the one construction they deemed most desirable. For this they would not have to be engineers; simple logic, common sense, would be enough.

In strategy, too, the ultimate decision must be made by those who hire the military experts—the American people. *Once the decision is fixed, all the services can be fitted into it to make it effective.* Only at that point does unified direction, with a direct line of authority, become possible.

In testifying before Congress, General Mark Clark pointed out that real unity and smooth co-operation existed in the fields of operation. General Dwight Eisenhower made the same point in a public address. "I find," he said, "that as you get farther away from Washington it does not seem too difficult for Army, Navy, and Air officers to be friends. I should say that the friendship goes in direct proportion to the distance you get away." Both generals argued, therefore, that a corresponding unity could be enforced in Washington, presumably if the will to be friendly were stronger.

But I fear they are wrong; they confuse tactics with strategy: the tactics in building the bridge, which is the job of men in the field of operation, and the strategic decision whether or not a bridge should be built. In the war which they led, our forces were deployed all over the planet building hundreds of little bridges, little tunnels, little boats. In each particular theater of operation, an appropriate engineer was in charge. Naturally everyone was "friendly" and co-operative; they were simply carrying out strategic decisions made elsewhere.

But in Washington today the problem is to decide *how* the huge gap between two continents will be negotiated. Why expect, let alone command, the competing strategy-engineers to forget differences involving their deepest and most patriotic convictions? In the operational areas, specialists work with given tools and given forces on given limited problems. But in the capital, the tools and forces are only in the incubation stage.

THE PREVAILING ASSUMPTION, in the words of the military "task force" of the Hoover Commission, is that the Unification Act "is on the whole soundly constructed, but is not yet working well."

I venture to differ. What is needed is a review of the Act—including the amendments of 1949—from scratch. The chief fault of the law was made explicit, it seems to me, by Admiral D. V. Gallery in a magazine article, though he was quite unconscious that he was doing so. "The type of navy that we need," he wrote, "depends on the roles and missions assigned to the Navy. *These have been clearly set forth in the Unification Law . . .*"*

*"Don't Let Them Cripple the Navy!," by Rear Admiral D. V. Gallery; *Saturday Evening Post*, October 29, 1949.

That's what is wrong with the law. It rules out genuine revision of strategy by setting up legal "musts." It is as if a community, in establishing a new hospital, were to prescribe the medicines and surgical procedures to be used. To prescribe roles and missions by law is practically to prohibit thinking on strategy that might make these obsolete.

In its Declaration of Policy, the Act of 1947 calls for "integration" of the three services "into an efficient team of land, sea, and air force." The reference is not to teamwork in any rhetorical sense but in the literal, strategic, and tactical sense of roughly equal roles and appropriations.

Teamwork is a great American principle, one of the bedrocks of our social strength. In the sense of sharing responsibilities and co-operating with your fellow-man, it will never lose its value. But in the military area, the teamwork concept, I fear, is being terribly overplayed. The connotation of equality of function—as expressed in the phrase "balanced forces"—is far from reality.

No football coach would insist that no single player make a touchdown until every member of the team has a chance to carry the ball a proportionate number of yards toward the goal. That would not work in football and it will not work in national defense. Instead of the team being justified by the right strategy, we seem to be groping for a compromise strategy to justify the team.

*"In strategy, the time has come to reassign responsibilities. Older members of the team must realize that their greatest contribution may sometimes lie in dignified and patriotic self-restraint—in enabling the most capable member in the modern context to operate with maximum effect."**

"It would be the height of folly," Mr. Forrestal wrote, "to assume that a war could be won by any single weapon. If we should ever have to fight a war, I cannot visualize a situation in which one of the services would operate independently. We must have a strong Army, a strong Navy, and a strong Air Force, and we must have them working together in the closest co-operation under all circumstances."†

In the elementary sense that all forces are likely to take some part in the course of a war, he was right. As right as it would be to declare that modern transportation does not rely exclusively on the automobile, that the horse and the bicycle will be with us in the predictable future. But to insist on "closest co-operation" between speeding automobiles and draft horses "under all circumstances" would be a fallacy as serious as the late Secretary's. To insist that in a possible war between Powers on two continents independent operation by air power is inconceivable, that the three services must work and fight closely together "under all circumstances," is fantastic. And no less so because it is implicit in the present law.

No one has ever claimed seriously that a single *weapon* can bring victory. The possibility under discussion is victory with a single military force, which is quite another thing. Much of the confusion can be traced to the mistake of thinking of the airplane as "a weapon"; it is a weapon-*carrier* which has opened up a new medium for war and has therefore become the basis of a new military force.

That one force, with others in supporting roles, can win wars doesn't need proving. That is how all wars have in fact been won, except the last, for reasons of confusion injected by the emergence of the air element. Those who seek to rest national security on a single military force are referring to a *predominant* force, able to guarantee absolute supremacy in its particular medium. They

*Statement by the author before the President's Air Policy Commission, December 1, 1947.

†First Report of the Secretary of Defense, 1948, page 7.

certainly do not exclude the support of other military elements in the measure dictated by the need. I know of no analysis of all-out air strategy that suggests the "abolishing" of surface forces. The problem is one of cutting them down to size to fit a new pattern of war-making.

But the categorical demand that all services must take part, and impliedly equal part, amounts to a demand that strategic thinking be frozen within the limits of recent experience. Suppose that in the days of cavalry we had an act of Congress providing that the Secretary of War must weld his army into an efficient team of men and horses. What chance would there have been for the timely development of tanks and other motorized forces which displaced the horse? To prescribe a land-sea-air team today as though it were an eternal institution is no less silly. In retrospect, I would guess, this will seem as weird as if the retention of battleships had been ordered by statute.

It is no accident that an admiral should have cited approvingly the inclusion of "roles and missions" in the Unification Act. It is no longer a secret that the provision for a team and the prescription of certain missions were part of the price exacted by the Navy for going along on unification.

When the program was proposed, the Navy objected, in fear of losing its ancient position of strategic leadership to the Air Force. When finally driven to agree, it stacked the law deliberately so as to prevent such an eventuality. To put the matter bluntly: *because their primary role had been obsoleted by the law of technology, the admirals tried to perpetuate it by bureaucratic law.* This is the principal reason why the law is proving so unwieldy, why so many partisans of the triphibious concepts want centralized power to enforce it, why "blow-ups" like the one staged by the Navy are to be expected as the contradictions between law and reality become manifest.

Let us focus on some of this trouble more specifically. Sections 206 and 207 of the Security Act are parallel provisions defining the Navy and Air Force Departments. The parallel, however, breaks down in one curious and significant respect. Nowhere in the Air section is there any detailed assignment of definite duties, tactics, functions, and missions. The Navy section, by contrast, specifies that this service "shall be generally responsible for naval reconnaissance, anti-submarine warfare, and protection of shipping."

If this referred only to missions to be carried out by surface or under-surface *ships*, there would have been no need to specify. Neither of the other services has ships or could reasonably insist upon building them. Though mention of airplanes is carfully avoided, the assignment would seem obviously to envision the use of *airplanes* for the listed missions. The Navy, before consenting to unification, took the precaution of preserving for itself by law functions in which it might be superseded by the Air Force!

Since the Act specifies that the Navy be responsible for naval reconnaissance, why doesn't it also specify that the Air Force be responsible for air reconnaissance? The answer is obvious. The Navy was seeking to bar the Air Force from air-over-ocean. In effect, artificial frontiers are erected in the sky. It recalls the preposterous Army-Navy agreement of a generation ago under which Army aircraft were forbidden to fly more than three hundred miles beyond the shores.

When planes could not yet span large bodies of water the assignment of these missions to the Navy still made sense—so much sense that it did not require guaranties by law. In a time of global aviation range, tactical iron curtains in the air become an anachronism. We are opening ourselves to the confusions that existed at Pearl Harbor, only this time on a global scale, and prescribed by law.

Shall air reconnaissance be taken over by naval aviation at the coastlines, as in a relay race? Must Air Force planes pursuing or seeking the enemy ask the Navy's permission if the pursuit should

extend beyond the shore line? Merely to ask such embarrassing questions is to point up the absurdity of the statutory assignment. Besides, what will the Navy reconnoiter? There will be no hostile navies to speak of, except submarines. Under conditions of global aviation range, the entire air space, over land and water alike, will be infested with enemy aircraft.

If the intent of the Unification Act is to make the Navy a completely self-contained force, then the U.S. Air Force by analogy should be no less self-contained. Much of the efficacy of air defense of the United States will depend on timely radar warning. Since the enemy may approach by sea, should the Air Force maintain its own radar ships at sea, and other ships to protect the radar ships —in the final analysis its own Navy, even as the Navy has its own Air Force?

The Air Force did not of course ask for its own ships. It will rely on the Navy to do the job. The American people have the right to expect the same sort of confidence in the Air Force on the part of the Navy. The Air Force is endowed, not by law but by technology, with the ability to provide the friendly skies under which naval ships can operate in carrying supplies or hunting submarines.

Even the idea that anti-submarine warfare was to remain primarily a naval function is pure make-believe. In the last war the spotting of subs and their destruction was in large part carried out by land-based aviation; and air offensive against the sources of submarines in enemy territory became increasingly the first line of defense against underseas craft.

It requires no law to assure the Navy of control of submarine chasers and other ships; but no law can give it a prior or exclusive role in anti-submarine air operations. The same holds true for "protection of ships." Insofar as the protection is provided by other ships, or by planes designed to enhance the efficiency of such ships, it is naturally a naval job. But ships have already been largely superseded by planes in this job; transoceanic range tends to make the shielding of sea traffic entirely an Air Force mission. To insist by law that these planes be naval is to turn back the clock of history.

This effort of the Navy to enhance its importance by legalistic gambits is bound to fail, because it is in conflict with the technological facts of life. Unification predicated on a deal to perpetuate the outlived roles of any service is bound to fail. The Security Act must be revised to permit the revolution in strategy dictated by history.

PRESERVATION OF THE MARINE CORPS *as a naval arm* is another legalistic absurdity. In reality it serves to minimize the uselessness of that arm by tying it into the vanishing functions of the Navy.

The law provides, for example, that this Corps serve with the fleet "in the seizure and defense of advanced naval bases." But an infinitely more vital job today is the seizure of advanced air bases, and not necessarily by surface fleets. The most significant "beachheads" of tomorrow are unlikely to be on coastlines, for war will be carried directly to the heart of the enemy nation.

Invasion in the future is more likely to begin at the center of the enemy area than on its periphery. It will be an air operation, as naturally under the aegis of the Air Force as the landing of Marines on Tarawa was a naval operation. The Air Force therefore should have its own air-borne corps for the undertaking —which would be available if the Marine Corps were reorganized and expanded on a truly triphibious basis.

Why limit and waste our Marine Corps —product of many generations of superb courage, organization, and spirit; product of our noblest military traditions—by making it eternally dependent on ships?

The Marines have been America's shock troops, its spearhead in seizing difficult forward positions. Whatever

course strategy may take, we shall still need that kind of spearhead. We shall need the courage that has endeared the Marines to the nation. But it should be a Corps capable of exerting its force wherever it is required, not only on beaches. It should be a truly triphibious shock regiment, equally at home on land, at sea, or in the air; equally effective whether landed on the edge of an enemy area or in the heart of the enemy country.

In the past the Marine spearhead could be projected across distance only by ships: it was a natural extension of naval power. In the air age our shock troops can be projected more quickly, more efficiently, through the skies. The link that ties the Marines to surface fleets must be cut if the Corps is to be saved from withering away.

I am convinced that the Marine Corps will ultimately have to be given wings and freed from the restraints of the outlived naval pattern. Why handcuff this great fighting force to landing craft by water in an era when the paramount medium of transport is the air? As long as war has not been banished from this globe, we shall need the Marine Corps—not as a museum piece of past glories but as a vital arm of future achievement.

And for this it must be converted into an *Aeromarine Corps* (though the name is not important), set into the pattern of the defense establishment as a spearhead shocktroop Corps on call for all the services. It will then have the same relation to paratroopers that it had in the past to soldiers; it will be a superb striking arm not of surface fleets but of all our fighting forces. This would not mean the "abolition" of the Corps but its release for greater, more realistic, and more vital service. To allow the Corps to remain an adjunct of the Navy would amount, indeed, to its slow abolition.

IN THE PROPAGANDA for centralizing strategic authority the accent has been on economy. Obviously everybody is against extravagance, just as everybody is against sin. But in the military domain true economy is not achieved by paring here and there, advisable as that may be. *True economy is inseparable from correct strategy.* If the entire program is based on the retention of superfluous weapons and forces, minor savings through efficient housekeeping become futile.

Suppose you live on a lakefront, but must do your shopping in a village a few miles down the shore. You maintain a horse, a car, and a boat. Suddenly you are obliged to economize. Would it not be silly to underfeed your horse, keep your boat leaky, and cut down on oil for the car? Would it not be more sensible to maintain only one means of transport —the one you judge most efficient—in perfect order?

To solve the problem of intolerable security costs, the American people must choose the decisive instrument of victory and channel their available resources into it. Efficiency may save us millions—but a streamlined strategy that eliminates outlived weapons and methods can save *billions.*

In testifying before the House Armed Services Committee, General Marshall declared that the whole trouble was in the lack of funds. Rarely has a truism come from a more exalted quarter. Unquestionably all "bickering" would cease forthwith if we could let the three services have sufficient money to make each of them capable of winning a war by its own strength. The essence of our current plight is that in relation to our probable adversary we have become in many respects a have-not nation. Our problem is to provide an adequate defense *within our means.* If we build up the *wrong* forces, we must pay for the error by cutting down on *right* forces.

To facilitate a decision, the Security Act should be amended to eliminate even the hint of any specific strategy through prescribed roles and missions, and permit uninhibited change. Each service should be able to present its case without inhibitions or interference. The central issue of strategy for victory will then be de-

cided, like all vital issues in our republic, by democratic methods. Crucial differences will be brought into the open, instead of being concealed or stifled.

Most airmen, convinced that the triumph of the concept of air-power strategy is inevitable in any case, welcome open competition of ideas. That, they feel, will hasten its acceptance. The attempts to hide strategic conflicts, to make them an inside family affair, have come from the diehards who, consciously or otherwise, want to evade popular intervention on the issues.

Outwardly, it would seem at this writing that a *modus vivendi* has been worked out. Lip service to unification comes from all official quarters. General Bradley has even retreated somewhat, at least verbally, from the ironclad concept of "balanced forces." But the fact remains that the contest for strategic roles continues; that each service seeks the largest possible appropriation to increase its relative strategic weight.

First, we are formally apprised by the Joint Chiefs of Staff that strategic air warfare is "sound" and the B-36 is its valid instrument.

Then, after the Exercise Swarmer maneuvers, the public is notified that the Army's "strategic airlift" must be extended. This, plus the flamboyant claims for "wonder weapons" that followed, represents the Army bid for a primary strategic role.

Finally, the Navy renews its claim to a primary strategic role. Following the dramatic cancellation of the supercarrier, the Chief of Naval Operations who staked his career on this ship was dismissed and a new one, presumably reconciled to curtailment of the function implied by the cancellation, took his place. But the dust had barely settled when the public learned that the supposedly defunct carrier was being resuscitated.

Avoiding any reference to strategy, Admiral Sherman explained to Congress that he needed larger carriers (though not as large as the supercarrier) for the safe operation of jet planes. It happens, however, that a deck long enough for the take-off of jets without help of rockets or after-burners is also long enough to accommodate any type of strategic aircraft. And indeed, soon thereafter it was disclosed that the Navy was organizing two A-Bomb Squadrons to "hit almost any spot on earth," as the press reported. In short, we are back where we started, with the Navy in a primary strategic role. Even the battleship is being slated for resurrection in the form of a guided-missile ship to protect carriers. Admiral Sherman disclosed the intention, as a starter, to convert a 13,700-ton cruiser into a guided-missile ship at a cost of $40,000,000.

Under the beguiling surface of interdepartmental peace we are thus proceeding to create three separate strategic forces, each demanding the largest possible share of our security potential—which amounts to a guarantee that none of them will attain the magnitude and concentration for victory. On the basis of mutual accommodation and backscratching, with little if any reference to real strategic imperatives, the services around the family table tend to divide the defense pie into three segments as equally and "fairly" as possible. We are well on the road to bankruptcy through confusion.

The creation of a unified military establishment in 1947, leaving the three services autonomous, was a step in the right direction—primarily because it put the Air Force on a basis of parity with the Army and Navy. Without such equality there could be no hope of acquiring proper and adequate air force. With all its faults, unification was preferable to continued sub-ordination of the Air Force to the surface services. Had aviation leaders refused the Navy's terms they might still have been subordinate officers in the Army. They have at least won the chance to make their own plans and defend them before the court of democratic opinion.

However, the military establishment, after the passage of the 1949 amend-

ments, is incredibly complicated and unwieldy. In this it reflects the conflicts and confusions in this transitional stage of the search for strategic "answers." The very use of terms is jumbled: the civilian Defense Secretary is given a "deputy," which is a military designation, whereas the Joint Chiefs of Staff are given a "chairman," which is a title in mufti. Moreover, the creation of this position of chairman, without the right to vote, implies a peacemaker and conciliator among competing strategies, rather than the military head of a well-defined strategic concept for national security.

The fact of the matter is that the present so-called unification is neither flesh, fish, nor fowl, and will never project a single strategy for victory. Either we have three autonomous co-operating departments—or we have one genuinely integrated department of one military force in conformity with one definite strategy.

Meanwhile, there is little comfort or help in being informed, as General Marshall informed us, that everything would be easy if we had unlimited money. Nor in an announcement, such as General Eisenhower made on October 20, 1949, that he would not "take sides" in the interservice struggle—the most fateful controversy of our time. A confused and anguished Congress had turned hopefully to General Eisenhower for definite guidance but received instead a high-minded sermon on the virtues of unity and good will. Lectures on faith and fortitude have their place and time, but they are not too useful when the patient needs an abdominal operation. The country, I think, is tired of fence-sitting. The security problem is too urgent for polite political formulas.

This is a critical time — a time for clean-cut and valorous recommendations without face-saving for the past or hedging for the future. Straddling is a luxury for easier times. In this fateful period the American spirit must be rallied by bold, outspoken, uncompromising leadership. And this goes not only for military affairs but for the political and economic areas as well. We cannot evade the challenge of a world riven in two.

When the people, having weighed all the pertinent facts, decide what the strategy shall be, the organizational setup will once again have to be revamped. If air force is recognized as the first line of defense and the only self-sustained strategic force, the establishment will ultimately have to be brought into alignment with this fact.

In place of an innocuous chairman, the Joint Chiefs of Staff will then be headed by a true military chief, vested with power of decision. His strategic ideology will permeate the armed forces—and he will, of necessity, be an airman. Then genuine integration, singleness of purpose, and unity of command will be achieved. The extraordinary power now vested in the Secretary of Defense will become superfluous. He will be essentially a civilian administrator, the personification of civilian control over the military.

The central question before America today is whether it will be primarily a land-, sea-, or air-power nation. It cannot be all three at the same time. The question, in the nature of the case, cannot be answered by admirals, ground generals, or airmen. A breed of military men unaffected by service bias may someday emerge. But its evolution will require at least a generation. In the meantime, the people must make the decision.

When the nation decides that its predominant reliance must be on air power, then unification will not require drastic policing. It will follow naturally and almost automatically. I am convinced that the American people, and in particular American youth, are ready for that clear-headed and courageous commitment.

# MYSTERY of a PHANTOM AIRPLANE

*By ANTHONY VAN TUYL*
*World War I Flying Instructor*

Commercial aviation was just coming into its own. A dozen years had passed since the end of World War I, which had started large scale flying on its way. The big National Air Show in Detroit attracted aviation enthusiasts from all over the country, including a number of wartime pilots. I was delighted to find some of my flying buddies from 1917 and '18, and of course the conversation quickly drifted to the days of the famous "Jennies" we used to fly.

Presently I noticed my old friend, Major R. W. Shroeder, of Ellington Field, Houston, Texas, during the War, sometimes affectionately known as "Shorty," because he was so tall. The Major had been in charge of night-flying there, and Kenneth Franzheim, now a prominent Houston architect, was in charge of the dual-control stage where I was teaching cadets to fly. "Shorty" and I caught up on a lot of talk about those days. I was interested in his world altitude records.

When there was a brief lull in our conversation I noticed a far-away look in his eyes and a puzzled expression on his face. Turning to me as though wrapped in deep thought, he said: "You know, Van, there is one thing I've been trying all these years to figure out, and I just can't imagine what in the world happened." He went on to tell of a strange mystery one night at Ellington. The night planes were out on the line and the landing lights were in place, but there was serious doubt about trying to do any flying on such a bad night. The billowing clouds and turbulent air had caused a fatal crash that afternoon when Lt. Marion Earle had been killed. The wind usually died down a little by night-fall but this time it was still pretty blustery. Lt. Miles Gelwick, of the night-flying staff, was anxious to take a plane up for a short "hop" to find out about conditions aloft. He was caught in those swirling currents of air and crashed to his death. That stopped any further attempts at flying and the planes and lights were put away for the night.

"All this had me pretty badly distressed" the Major said, "but it couldn't have had anything to do with what happened next." He recalled that it was long after taps and most everyone had retired but he was still wide awake and could hear the unmistakable sound of an airplane flying low over the field. He rushed out in time to hear it circle around in the darkness and then die away far to the south. A double check in the hanger revealed all the night planes were there. The guards expressed concern for the strange plane coming in near the ground and then flying away, but knew nothing about it. There were no lighted fields anywhere around for the plane to come from and there was nowhere for it to land. It seemed a certainty that another fatal crash would be reported in the morning, but none was ever found.

"There was a lot of talk the next day," Major Schroeder observed, "about the obscure visiting airplane from nowhere, but none of the flyers could fathom the mystery. Some folks might believe in ghosts, but how could a ghost fly a man-made plane?"

"Well, Shorty," I said, "I am the only man in the world who can tell you all about it, because I was the ghost in that phantom plane." It all started on the afternoon of that eventful March 14th, 1918, when I was giving a flying lesson to my special friend, "Speck" Porter, a recent graduate from the University of Texas Law School. Our engine cut out on the way to Galveston so we landed in a pasture. Two mechanics came down from the field, in a car, and made the necessary repairs, which took all the afternoon and they had to finish by headlights from automobiles. After the job was completed it was up to me to fly the plane back.

In my cow-boy days, some years before, on ranches and driving cattle up the trail there had never been any difficulty in finding the way, and I thought sailing through the stormy clouds would be just as easy—but it wasn't! My passenger, Speck Porter, and the folks who had gathered around were completely horrified at the idea of my attempting to fly back to the base on that sort of a night, with no lights, no compass and nothing to fly by. Well, flyers had to be a little bit queer in those days or they wouldn't have been flying in the first place. But why so many flyers used to take so many foolish chances no one will ever know. I was always ready for new adventures and had never flown at night, so I was determined to try it.

With the automobile headlights lined up to help me take off, away I went. The wheels had no sooner lifted off the ground than I realized I was in trouble—big trouble—but it was too late then. Banking to the left to miss tall trees ahead, the plane was losing altitude. That called for straightening out again and climbing, then another turn to miss the trees and more climbing. By that time I was completely mixed up and had no idea where anything was. There were clouds overhead, sometimes clouds below, and never a landmark visible in any direction through the darkness. Tossed about in the rough air like a canoe on the ocean it was difficult to stay level enough to fly. Extra loud "singing" of the brace wires indicated nosing down, and "loggy" controls meant too much climb. Those were some of the ways to "fly by the seat of the pants" in those early flying days.

Exerting all human skills and intuition might keep the plane in the air but no mortal power could point out the direction of the field, with no compass, no landmarks, and no indicators of any sort. A man never knows, till he gets in a precarious situation like this, just how close he is to his God. I have heard of God as a co-pilot, but this predicament was way past that. God was the pilot—the only pilot. I could be of no help whatever, in finding the direction of the base. If ever a man prayed to God with all his strength and all his soul it was me, on that terrifying night. When I had exercised all my flying ability keeping the plane from falling in those turbulent clouds, I had reached my limit. The Lord and I were the only occupants of that craft and He was in complete charge in pointing out the right direction. After what seemed half the night drifting through the treacherous sky the Lord led me right over Texas City.

I had recently drawn a map from the air of this area, so it was familiar. The well-lighted refinery was easily distinguished and was the first landmark to appear. It was still a long way to Ellington Field but at last my position was known and here was my first ray of hope for eventually getting back to "Old Mother Earth" all in one piece and right side up. There were no parachutes then, and no chance to "bail out." Just gliding down, anywhere, was equally out of the question, for that might lead to the middle of a forest, a deep creek or right to the

bottom of the Gulf of Mexico. So taking my bearings from Texas City I headed straight for the home base, hoping to come down by the landing lights.

Finally the lighted hangars and water towers of Ellington began to appear, and no one can imagine what a wonderful sight that was. Drawing nearer I could see that the landing lights had been taken off the field, but that couldn't bother me then. Unobstructed terra firma was somewhere ahead and could be found. Circling the field to get a rough idea of where the ground might be, I went way back for a long, slow, stall landing. Of course there was no chance to see the ground but I kept the glide until the wheels touched down. Then there was an indescribable feeling of relief from all the anxiety to be standing once more on solid ground, back in the land of the living. As soon as the plane could be put away I made straight for quarters.

My pal, and former passenger, Speck, in the meantime, had elected to drive back to the field in the car with the mechanics, instead of flying back, showing excellent judgment. I should have gotten back well ahead of them, going by air, but I didn't. Just as Porter and the repair men approached the Ellington entrance a funeral car was starting to Houston with a casket. Thinking it might be me, they made a beeline for the hospital to inquire. They learned of two bodies that had been sent to town, but they had no word from Lt. Van Tuyl. Speck then dashed down the line to our quarters, but still no word from his missing pilot. It was way in the night and most of the field was sound asleep, resting up for another round of flying the next day. A few of the bird men were having a friendly crap game when young Porter came in and he lost no time in telling them of this wild flight. Time dragged on and they were already chalking up another fatal crash—the third for the day. They could see no possibility of my making it back now, after all this time.

It was very quiet inside the building, a spooky time of the night. Now the storm would subside, a little, and then grow more intense. It was a rough night to be out, even if you were on the ground, "but what about that poor guy up in the top of those thunder clouds?" wondered one of the flyers.

All of a sudden the door flew open and in I walked. They couldn't have been more astonished if a ghost had appeared. "How in the world did you get here?" Speck began. Well, that was a long story, and it was getting very late. But by the Grace of God, there I was!

# LETTERS TO EDITOR . . .

Dear General Anderson:

I could not simply mail a renewal check to you without telling you how pleased I have been with the quarterly magazine, *The Airpower Historian*, published by the Foundation. Like most of us, I subscribe to more periodicals than necessary, for one reason or another; and I believe that, originally, I joined the Foundation out of curiosity. But I have been more than satisfied. Yours is one of few publications that I read, and enjoy, cover to cover. Enclosed is my check for $10.00 for the next four years.

A bread-and-butter "thank you" note is paltry return for the genuine pleasure my membership has brought me, and I want you to know how much I mean this.

Yours most appreciatively,
D. FRANK LEVEIN
Lt. Colonel, AFRes.

Dear General Anderson:

I am enclosing my check for $3.00 to cover membership dues for 1961.

Although I have been a member of the Foundation for only one year, I have benefited greatly from reading *The Airpower Historian*. Each issue has its own individual appeal; something of the old Air Force complemented with a present-day concept. I believe that the presentation of past history to illustrate current opinions and strategy is the best manner in which to impart a true and accurate preception of the role of air power today. This is augmented by the excellent book reviews and notice of recent articles pertaining to air power.

I believe that *The Airpower Historian* is the most distinguished periodical in its field, and I would like to state that it has more than fulfilled every expectation. I do not hesitate to recommend it to friends and associates. I hope that circulation can be increased so that the *Historian* can be enlarged in format and distribution.

Sincerely,
SAMUEL R. BLATE

Dear General:

Enclosed is a money order for $3.00 for this year's membership in The Air Force Historical Foundation.

I am very proud to be a member of this organization and always look forward to receiving *The Airpower Historian*.

A year ago Major General B. D. Foulois gave me a gift membership for one year. I intend to remain a member as long as possible, not only because I appreciate his kindness, but because I consider it a privilege to have the opportunity to support your organization, and I feel I can learn a great deal about the Air Force from your publication.

MARTHA L. HOWE, ARC
U.S. Naval Hospital

Dear General Anderson:

With many humble apologies herewith is my overdue remittance of six dollars, plus three more to keep my subscription alive until September 1961.

I'm happy to report that, not only is *The Airpower Historian* interesting, but it is also of important value to me and my office. Like a growing number of people, I'm much concerned over the lack of interest, even apathy, which our people display to the speed and ease with which we are losing the Cold War. I have found the lead article in the *Historian's* October 1959 issue most valuable.

I look forward to being a reader of your valuable publication during a long future.

Sincerely,
OLIVER L. HOBSON
Historian, USAF

Dear Andy:

Your letter of 11 October was received and was sincerely appreciated. I would like to take just a moment to tell you that I think the job you are doing is truly outstanding.

*The Airpower Historian* is so full of the stuff upon which legends and traditions are built that I find myself hoping that the younger generation has access to the publication. Yesterday must always be observed most closely in order that tomorrow will be a better day.

The office address above is the best for mailing purposes—I can keep track of them better.

My warmest regards and best wishes.

Sincerely,
STUART P. WRIGHT
Major General, USAF (Ret.)

# *BOOK REVIEWS*

Brig. Gen. William D. Mitchell, *Memoirs of World War I*, "From Start to Finish of Our Greatest War," (New York: Random House, 1960.)

Woodrow Wilson campaigned in 1916 on the platform, "He kept us out of the war," but to many observers America's participation in the first war was imminent. To Colonel William D. Mitchell it was inevitable. In 1914 he had reported to the General Staff, U. S. Army, that if the Allies were allowed to float loans here, the United States would become a belligerant. Whatever his true feelings towards this involvement, Mitchell carefully guarded them from the reader of his excellent and otherwise candid "Memoirs." As a soldier, it was his stern duty to remind his superiors that the U.S. was ill-prepared to go to war. Mitchell urged beefing up the air service which, in the star-crossed Mexican episode, had been exposed as devoid of combat capability or potential.

Mitchell was sent to Europe in March 1917. In Spain on April 6, 1917, when the U.S. declared war on Germany, Mitchell went on to Paris. With great enthusiasm he visited the front lines and stayed on for weeks. His narrative accounts of trench warfare and the militarily unproductive slaughter that it produced are vivid, sometimes brilliant, and always purposeful. He developed suggestions for the fledgling American air service which he sent back across the ocean in a veritable stream. His flamboyance and tireless energy percolated up from his deepest belief that the airplane, if used properly, would be decisive in any future war.

He was frank to criticize what he considered archaic military organizations. In England the German raiders were having pretty much their way. The Royal Naval Air Service claimed jurisdiction over the air space that lay over the water, insisting that the Royal Flying Corps be restricted to the air space over land. Taking advantage of this divided authority, German planes would cross the Channel too quickly for the naval planes to reach them, and would bomb the English cities before they could be intercepted. If the Royal Flying Corps planes did manage to give chase, regulations obliged them to quit at the water's edge.

Later in the war, the British, under the leadership of General Hugh Trenchard, ended this dichotomy of control. By establishing the unified Royal Air Force, Mitchell happily notes that the English "leaders were not bound down with tradition as those of the older French and German armies were."

The lesson of unified independent airpower to which the "Memoirs" return time and again had to be relearned in the U.S. during World War II. Six weeks before the attack on Pearl Harbor, an official suggestion was made to General Douglas MacArthur, then Commanding General of U.S. Army Forces in the Far East, that the Navy, control all air operations "over the water." In exchange for these favors, U.S. Navy aircraft assigned to land objectives were to be placed under Army tactical command. Although General MacArthur did not accept this artificial division of control, the fact that it could be advanced as serious strategy suggests that U.S. military doctrine in October 1941 had not advanced much from World War I. Moreover, this incident helps to explain why we were unready for the stern national test which began on December 7, 1941.

Billy Mitchell pulled few punches in his "Memoirs" which embrace some acid reflections on more famous contemporaries. He thought General Pershing "pussyfooted just when we needed the most action." In Mitchell's appraisal, "aviation affairs were pretty badly messed up." Had they been turned over "to the kind mercies of the General Staff of the A.E.F., we would have had little or no aviation during the war," he wrote.

General Benjamin Foulois was another target of Mitchell's impatience. In January 1918, a contingent of dignitaries led by General Foulois appeared at AEF headquarters at Chaumont asking to be escorted to the forward areas for an inspection of air operations. Mitchell eyed the non-fliers in the inspection party and was reminded of the harassed cavalry officer who informed his commanding officer that he had 200 men who had never seen a horse, 200 horses that had never seen a man, and 25 officers who had never seen either.

On another occasion, Mitchell railed against General Staff officers who descended on his 1st Brigade, Air Service, from Paris asking a lot of questions. He said they had as much knowledge of air operations "as a hog has about skating." Such an attitude led Mitchell to some "very heated" talks with General Pershing, "with much

pounding on the table with fists on both sides of the arguments." General Pershing once threatened to send him home.

One later surmises that their disputes were less acrimonious than the volatile Mitchell would, in some contexts, lead the reader to believe. Mitchell, in fact, reveals a solid base of respect for Pershing's organizational ability. In the other direction, when the chips were down, Pershing backed Mitchell to the hilt. This mutual support helped to make possible such accomplishments of the American Air Service as were recorded.

Mitchell and Foulois also patched up their differences. In July 1918, Foulois recommended to General Pershing that Mitchell be appointed to succeed him as Chief of Air Service, 1st Army, on the basis of the contributions of Mitchell's fliers to victory at Chateau-Thierry. Two days later, the appointment was approved. Shortly thereafter Brigadier General Mitchell led his forces in the great battles of St. Mihiel and the Argonne forest in close collaboration with leaders like George Patton who "rode into St. Mihiel on the back of one of his tanks, away ahead of any other ground troops in the vicinity."

The Armistice on November 11, 1918 was joyously received by all. Mitchell was not so overwhelmed by his emotions as to fail to note that of the 740 airplanes in American units at the front, the vast majority were of French or British manufacture. Twenty months after entering the war, he wrote, the U.S. had only been able to put 196 planes on the front. In eight months of combat beginning in March 1918, American fliers shot down a confirmed total of 927 planes or balloons against comparable losses of 316. The remarkable combat ratio of 3 to 1 is a tribute to the training of the aviators and reflects the quality of their leadership.

Looking at it in another way, these statistics add blood and sinew to the skeletal legend of Billy Mitchell, now enshrined in the history books and in the memories of his countrymen as THE pioneer of aerospace power.

DR. MURRAY GREEN,
Research and Analysis Branch
Office Sec. of A.F.

THE ACES. By Frederick Oughton. (New York: G. P. Putnam's, 1960. pp. 384 [no price listed on dust jacket])

Books on the flying soldiers of World War I remain commercial. Here is another, one by an English newsman, which compresses well the oft-told stirring accounts by adroitly integrating a biographical approach with chronological progression. Boeckle, Immelmann, Richthofen, Guynemer, Mannock, Ball, Coppens, Bishop, Rickenbacker and the rest of the "cavaliers of the skies" fly high again in the historical dispatches. And, it is good reading in spite of the judgement that embryonic air forces were rather indecisive in the major operations of the 1914-1918 war, a bloody conflict largely characterized by massive artillery barrages, gigantic infantry attacks, and stalemated and muddy trench warfare.

The author has done a credible effort in his research, and his appendices instruct the lay reader. Like the dashing cavalry of real horse-powered days, the brave flying exploits of World War I remain popular reading because even the mechanization of warfare in the air had not yet been dehumanized and impersonalized. Even historians are inclined to forget the interesting tidbits, such as the use of LePrieur rockets on Nieuport fighters to down hydrogen-inflated balloons and Zeppelins before the development of reliable incendiary bullets.

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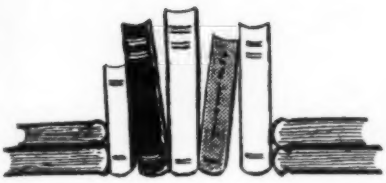

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ATKINSON, JAMES DAVID, *The Edge of War*. Chicago: Henry Regnery, 1960. $6.00. This should become a standard work on unconventional warfare. It portrays Soviet methods in graphic style.

BROOKHOUSER, FRANK, Editor, *This was your war*. New York: Doubleday, 1961. $4.95. Samples of the best and most typical accounts of all aspects of World War II.

CARELL, PAUL, *The Foxes of the Desert*. New York: Dutton, 1961. $5.95. A complete story of the Afrika Korps from the German point of view.

COMPERE, TOM and VOGEL, W.P., Jr., Editors, *Air Force Blue Book* (1961). Harrisburg, Pa.: Military Service Co., 1961. $1.50. Handy fact book on Air Force operations.

COUSINS, NORMAN, *In Place of Folly*. New York: Harper, 1961. $3.00. Feels that the answer is world peace through world law and the UN, with the Security Council replaced by an Executive Council with adequate authority.

CRISP, ROBERT, *The Gods were Neutral*. New York: W. W. Norton, 1961. $3.95. During 1941 Greece was briefly a war zone and this book tells of an abortive mission to hold the country as the German panzers move forward.

CROSSFIELD, A. SCOTT, *Always Another Dawn; The Story of A Rocket Test Pilot*. Cleveland: World Publishing Co., 1961. $4.95. Story of the test pilot for the X-15.

GREEN, WILLIAM, *Famous Bombers of the Second World War*. New York: Doubleday, 1960. $3.95. An accurate well-illustrated account of 12 of best-known bombers.

HIGGINS, TRUMBULL, *Korea and the Fall of MacArthur*. New York: Oxford University Press, 1960. $5.00. A well-written and well-documented account.

KAHN, HERMAN, *On Thermonuclear War*. Princeton, N.J.: Princeton University Press, 1961. $10.00. A study of the probable effects of thermonuclear war. He does not think this would be the end of all existence, if an effective shelter program is available.

LAPP, RALPH E., *Man and Space: The Next Decade*. New York: Harper, 1961. $4.95. A well-rounded summary of what has been accomplished in space and what is likely to be accomplished in the next decade.

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PERLA, LEO, *Can We End the Cold War?* New York: Macmillan, 1960. $4.50. An analysis and criticism of our conduct in the prosecution of the cold war. He thinks that cooperation, brotherly love, and mutual aid must become our policy.

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ROPP, THEODORE, *War in the Modern World*. Durham, N.C.: Duke University Press, 1960. $10.00. A history of modern warfare in readable narrative with excellent bibliographical notes.

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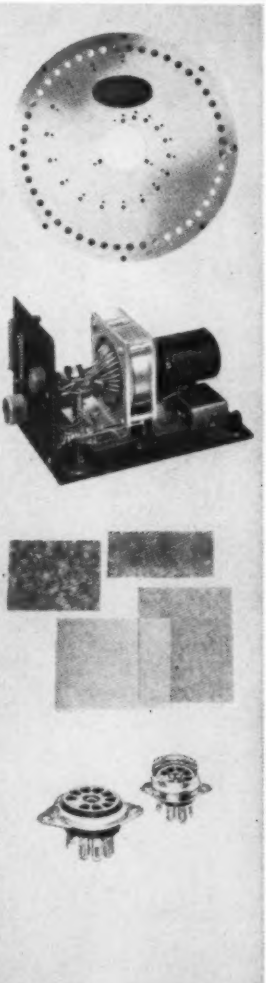

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